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UNIVERSITY OF ALBERTA

ENGENDERING NORTHERN PLAINS PALEOINDIAN ARCHAEOLOGY:
DECISION-MAKING AND GENDER/SEX ROLES IN
SUBSISTENCE AND SETTLEMENT STRATEGIES

BY

CAROLINE ROSE HUDECEK-CUFFE



A THESIS SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
AND RESEARCH IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

DEPARTMENT OF ANTHROPOLOGY

EDMONTON, ALBERTA

SPRING 1996



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ISBN 0-612-10596-2

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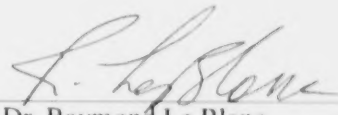
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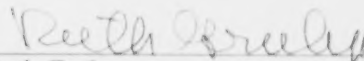
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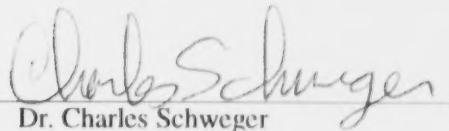
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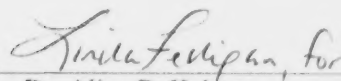
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ABSTRACT

In North American Prehistory, especially Plains Prehistory, the term Paleoindian conjures up images of big game mammoth and bison hunters. Moreover, the focus on typology, systems analysis, adaptation, and the environment in Plains research, combined with the assumption that gender is an irrelevant and static aspect of culture, has resulted in a very mechanistic, functional, and essentially de-humanized view of Plains Paleoindian life. An examination of Plains Paleoindian lifeways reconstructions reveals very little explicit examination of gender and, instead, a reliance upon implicit and questionable assumptions about gender roles and relations of hunting-gathering societies.

Increasing archaeological evidence, however, is questioning traditional interpretive models that assume the centrality of big game hunting for all Paleoindian populations across the continent. In addition, gender research of the past 25 years has clearly illustrated that gender, instead of being static, biologically based, and an irrelevant part of cultural dynamics, is an active and highly variable cultural construct. Recent ethnographic and anthropological studies have demonstrated that gender/sex relations of many hunting-gathering societies are frequently characterized by flexible, overlapping, and complementary roles. This flexibility would have been especially beneficial for Northern Plains Paleoindian populations, who were living during a time of drastic climatic change. All Paleoindian individuals, including men, women, and children, would have been involved to some degree with acquiring information that was essential for making subsistence and settlement decisions and, moreover, extremely important in the context of increasing variability and changing environments of the late Pleistocene. Northern Plains Paleoindian populations were likely characterized by interdependency and complementarity in gender/sex roles, with an emphasis on

flexibility and fluidity in their gender/sex roles, relations, and decision-making processes.

While all aspects of gender can never be recovered from the archaeological record, examining subsistence and settlement strategies from the perspective of gender, information acquisition, and decision-making can be an important first step for incorporating men, women, and children back into de-cultured and hunting-dominated models of the past, and, in the process, restoring some sort of balance to our conception of the Paleoindian past.

ACKNOWLEDGEMENTS

I would like to thank several people and institutions for the help and assistance that they have given me during the course of this dissertation work.

Financial assistance for this study was provided in part by University of Alberta Graduate Assistantships, an Izaak Walton Killam Memorial Scholarship, and a Province of Alberta Graduate Fellowship. I would also like to acknowledge the Department of Anthropology for their help in providing space and resources, as well as the many members of the Department, in particular Pamela Willoughby and Henry Lewis, who always encouraged me throughout my years at the University of Alberta.

I am particularly grateful to my supervisor, Raymond Le Blanc, for supporting, encouraging, and advising me, and especially for sticking with me through a major change in my research focus. All his suggestions and comments on the many drafts of this dissertation are greatly appreciated. I would also like to acknowledge the assistance of the other members of my supervisory committee, Charles Schweger and Ruth Gruhn, for their encouragement over the years and their many helpful suggestions and recommendations concerning my research and dissertation. I also appreciate the help and advice provided by committee members Eric Higgs, Ian MacLaren, and Alice Kehoe.

In addition, a special thank you goes out to all those individuals who provided advice, references, and comments on various drafts of the research proposal for this project and on parts of the dissertation, including Caroline Bird, Cheryl Claassen, Dena Dincauze, Linda Fedigan, Milton Freeman, and Joan Gero. In particular, I appreciate the assistance of both Murielle Nagy, my Riel House office mate, who would always bring articles and books dealing with gender topics to my attention, and Alwynne Beaudoin of the Archaeological Survey, Provincial Museum of Alberta, who provided me with numerous and helpful paleoenvironmental references. Thanks go to Bob Dawe, also of the Archaeological Survey, for his help in showing me how to produce a computer image of my map. As well, other staff at the Archaeological Survey, in particular, Jack Brink, Rod Vickers, Brian Ronaghan, and Heinz Pyszczyk, deserve acknowledgement for their patience and support during the last year.

Last, I would like to thank my family for their continuing support over the years, and most especially my husband Martin, for giving me encouragement when I needed it the most.

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CHAPTER I

INTRODUCTION

PROBLEM IDENTIFICATION

In North American prehistory, the term Paleoindian conjures up images of big game mammoth and bison hunters, yet little is actually known about the details of Paleoindian subsistence, settlement patterns, lifeways, and adaptive strategies. Historically, this popular notion of specialized big game hunters originated from several discoveries on the southern Great Plains of fluted points in undisputed association with extinct Pleistocene fauna, beginning with the Folsom discovery in 1926 (Bryan 1991:16). Although based originally upon only a few discoveries, this model of a Paleoindian big game hunting tradition existing across the entire continent became strongly engrained in North American archaeology.

Traditional interpretive models see Paleoindians as highly mobile, composed of small groups of people with economies focusing on big game hunting with little or no knowledge of methods for bulk preservation and storage. In addition to emphasizing the importance of big game hunting, these Paleoindian lifeways reconstructions, especially those for Plains populations, were and still are influenced and characterized by common unsupported notions frequently derived from selective analogies with modern and historic hunting-gathering groups. Paleoindian cultures often tend to be viewed as a collection of isolated traits, as groups adapting to their environment in mechanistic and purely functional ways. Because of the focus on analogies, systems analysis, adaptation, technology, and subsistence, the people of Plains Paleoindian prehistory have become invisible, essentially passive and irrelevant pawns controlled by a larger cultural system. Gender roles uncritically derived from ethnographies and idealized models of behaviour in state-level societies that see men hunting and in charge of the political realm and women gathering and relegated to the domestic realm underlie Plains Paleoindian lifeway reconstructions. Moreover, the male-focused perspective that has characterized most of archaeology until only recently, and the emphasis upon the more visible and supposedly more important male hunting activities in Plains prehistory have tended to minimize and ignore the potential importance of the roles of women and children, their labour, and contributions to subsistence.

More recently, the accumulation of more detailed paleoenvironmental evidence (e.g., Graham and Lundelius 1984; Graham and Mead 1987; Guthrie 1984; Martin et al. 1985) indicates that the late Pleistocene environments in which Paleoindians lived and adapted were very different from any of those today or in the recent past. This new information calls into question the uncritical use of modern or historical analogies to interpret environments and lifeways for the Paleoindian period. Moreover, increasing amounts of archaeological data for early Paleoindian adaptations across the entire North American continent (see Bonnicksen and Turnmire 1991; Soffer and Praslov 1993) are suggesting that there is much more variability than our original models assumed. More specifically, these data indicate that first, early Paleoindian Clovis lifeways and subsistence strategies were not uniform and homogeneous over the entire continent, and secondly, that the focus was not necessarily on the hunting of big game but rather on practising more diversified, generalized economies, exploiting a variety of environments with reduced mobility. Several archaeologists (e.g., Meltzer 1993a; S. Olsen 1990) are thus beginning to question whether early Paleoindian groups were the specialized megafauna hunters they are portrayed to be in the archaeological literature. However, despite this evidence, which illustrates that the North American Paleoindian record reflects regionally distinct and diverse adaptations, and which consequently seems to suggest that the traditional entrenched view of Paleoindian lifeways and their environments is inaccurate, there is, as Bryan (1991:16) noted, still considerable resistance to revising this big game hunting model or even considering alternatives.

RESEARCH GOALS AND PURPOSE

In light of the new data suggesting diversified and generalized Paleoindian economies, and the explosion of gender research in recent years, it is obvious that there is a need to reevaluate the Paleoindian big game hunting model and its associated gender views, a model which resulted from an interpretation of a small and spatially restricted archaeological database and a reliance on ecological and ethnographic analogues that are now highly questionable. Thus the goal of this research is to begin to reconstitute the present cultural-ecosystem "diorama" of Paleoindian lifeways, that is, to attempt to reconstruct an alternative and more appropriate model based on this most recent evidence, and using a more critical methodology and approach in model-building.

Emphasis will be placed upon the analysis of gender/sex roles in relation to subsistence activities for Paleoindian times, specifically focusing upon determining or

considering the potential influence and contributions of not only men, but women and children as well, in terms of decision-making in subsistence, settlement, and mobility strategies. Hence, the major thrust of the research will be its attempt to make people more visible as prehistoric actors. This effort will also include critically examining how archaeologists construct gender systems in their interpretations, analyzing their assumptions about gender in prehistory, and analyzing the relationship of those assumptions to the social context in which they were produced. As well, this study will raise the entire issue of the use of analogy; therefore, the validity of using ethnographic analogy in archaeological interpretation will be addressed along with implications of assuming continuity in gender roles from the recent past back to Paleoindian times.

Part of the reconstruction will also briefly consider the relationship between the nature of the Northern Plains late Pleistocene environment and the ways in which human groups may have made decisions with respect to positioning themselves across the landscape in order to make a living from that environment. In other words, by examining the most recent paleoenvironmental data, I will take into consideration the context in which Paleoindian decision-makers would have been operating and interacting.

From this perspective, one that is very different from the traditional typological, functional, and adaptational view of Paleoindian strategies, I hope to develop an alternative and a more realistic and comprehensive interpretation of the Paleoindian archaeological data. In the process, my aim is to question and avoid reliance on the stereotypical view of Paleoindians that for so long has structured archaeological interpretation of Paleoindian lifeways. Hopefully this study will contribute towards a much needed revision of the North American Plains Paleoindian subsistence/settlement model.

THEORY

Introduction

For most of the history of hunter-gatherer research, theories have been relatively general, and until recently, only two fundamentally distinct but general models of hunter-gatherers could be identified in anthropological research (Bettinger 1991:3-5). The first is a developmental or evolutionary model which has as its basic premise, unilineal evolution and the view of hunting-gathering groups as the most "primitive" within an evolutionary framework of band, tribe, chiefdom, and state. The second

model revolves around an ecological or materialist theme, in which hunter-gatherers are seen as an adaptive system "in harmony" with the environment and maintaining a homeostasis or equilibrium state. This neofunctionalist perspective, which was advocated by proponents of the New Archaeology, tended to regard hunting-gathering societies as relatively stable, with change occurring only as a result of external factors. For example, Binford (1983:221) stated that a system will remain stable until acted upon by forces external to its organization as a system. These external pressures are generally seen as being either environmental or demographic (Lourandos 1988:149). Prehistorians have long recognized the importance of the environment as a potential catalyst for change in human adaptive systems (Bonnichsen et al. 1987:403), but less frequently consider social or internal factors as variables of change.

These dominant theoretical orientations within hunter-gatherer research and archaeology are considerably flawed and inadequate for hunter-gatherer studies (see E. A. Smith 1991:3-8). Bettinger (1991:214) even argued that there is no general theory in archaeology or hunter-gatherer research that can support a body of limited theory about hunter-gatherers. Firstly, the emphasis on systems analysis did not allow for individual action, but rather viewed people and their behaviour as controlled by processes and constraints of the larger cultural system, and ultimately relied upon weak functional explanations and techno-environmental determinism (Hodder 1985:7; Shanks and Tilley 1992:117-118). Moreover, the emphasis on homeostasis as a natural condition of cultural systems, and its focus on hunting-gathering groups as adapted populations, brought to light the issue of adaptive behaviour (see Bettinger 1991:57). Archaeologists did not know how hunter-gatherers were supposed to act to be adaptive. They had to assume that everything hunter-gatherers did was adaptive, and "that the observed pattern was the only 'right' one under the circumstances" (Bettinger 1991:57). In addition, dependence on a typological approach in neoevolutionist perspectives, and the search for the "typical" hunting-gathering society, resulted in unproductive work and concealed potential diversity and variability (E. A. Smith 1991:4). Although New Archaeology's emphasis on neofunctionalism and adaptation has been a productive approach in the short-term by providing much information about paleoenvironments and prehistoric human ecology (Bettinger 1991:215), there exists the almost certain possibility that variability could be obscured by grouping all individuals into a single adaptive group.

Theoretical Perspective: Discussion

Limitations of Processual Archaeology: Criticism of Science

These criticisms of the neofunctionalism perspective of hunter-gatherer theory reflect, in part, the relatively recent questioning of processual archaeology's theoretical and methodological orientations, and the questioning of science in general by certain scholars (e.g., Hodder 1986; Kelley and Hanen 1988; Rosenau 1992; Shanks and Tilley 1989, 1992). Numerous researchers have come to realize that the positivist view of the philosophy of science and the emphasis, firstly, on the deductive-nomothetic form of explanation, and later, the hypothetico-deductive approach on which most of the processual or New Archaeology, as it became known, was based, are inadequate (Kelley and Hanen 1988:viii; Shanks and Tilley 1989, 1992). Many of the scientific laws and universal generalizations for which some early processual archaeologists searched have been labelled as meaningless (Kelley and Hanen 1988:11), and the results viewed as "Mickey Mouse laws" of little conceivable value (Flannery 1973:51). As well, questions have arisen as to the possibility of ever conclusively verifying hypotheses and universal generalizations, with the realization that no number of positive instances of a hypothesis could demonstrate that a hypothesis was true since there would always be unexamined situations that could prove it to be false (Kelley and Hanen 1988:11, 36). Moreover, it is the researcher who ultimately chooses whether or not a test has falsified or supported a hypothesis (Shanks and Tilley 1992:42). Karl Popper (1959, 1969, 1972) recognized this problem, that no number of singular observations could ever conclusively prove a statement. His solution was to emphasize, not the verification of statements, but their falsifiability; that is, while scientific laws were not provable, they could be tested by systematic attempts to refute them (Magee 1973; see also Bell 1994 for a detailed account of the refutationist view of science).

The New Archaeology with its positivist perspectives has tended to promote the belief that archaeological data, theory, and interpretation are "scientific," absolute, and value-free (Meltzer 1983a:67); therefore, for positivist and empiricist theories of science, a body of empirical "facts" that are used as evidence is considered to be the stable foundation of all knowledge (Wylie 1992a:18). In other words, for science and archaeology, facts and data are believed to exist as phenomena waiting to be discovered or explained (Kelley and Hanen 1988:296), with answers, truths, and knowledge merely emerging from the database if the correct scientific procedures are applied. However, this view is unrealistic and, moreover, misconceived (Kelley and Hanen 1988:296-297). Science does not nor cannot reveal meaning and truth passively (Shanks and Tilley

1992:244); that is, meaning and knowledge are not out there waiting for discovery but rather are acquired through interpretation, a dialectical process involving the archaeologist, theory, and the data (see Shanks and Tilley 1992). Facts do not exist independently of theory as Kelley and Hanen (1988:296-297, 376) stressed, but rather are always selected in reference to a specific theory or idea, since it is virtually impossible for all available data to be carefully considered. In essence, archaeologists choose and give meaning to the key facts, data, and variables which they believe to be most relevant, overlooking or ignoring other evidence that may not appeal to them (G. Haynes 1991:259; Kelley and Hanen 1988:367; Shanks and Tilley 1992:13). As has been argued, data are often molded to fit preferred conclusions (Lewin 1987:68). Since data can have different meanings depending on the individualized desires, beliefs, and wishes of the interpreter (G. Haynes 1991:205), the interpretation and presentation of facts is controlled to some extent by theory and preconceived beliefs (Kelley and Hanen 1988:376; Lewin 1987:19). Clearly, an individual's conceptual framework can allow him or her to see and accept certain ideas and not others (Bleier 1984:3) and hence can never be entirely neutral.

Thus the whole idea of objectivity in archaeology and in science has been questioned. No method currently exists for determining whether neutral, objective, and absolute truth can be present in any system of thought (Gero et al. 1983:2). Scientific methodology can and has often been manipulated to support preconceived beliefs (see Bleier 1984 for a more detailed discussion). Moreover, archaeology, or any science for that matter, is not an isolated system, separate from or uninfluenced by the societies in which it is performed (Kelley and Hanen 1988:100). Instead, archaeology is a social procedure (Gero et al. 1983:2), firmly set within a particular time and place (Soffer 1983:102). Archaeologists are people who participate in society like any other people (Wobst and Keene 1983:81). What archaeologists see as archaeological problems, and how they attempt to solve them are very much affected by the cultural and historical setting in which they function as archaeologists. It is becoming increasingly apparent that archaeology, as are all other disciplines, is fundamentally tied to and conditioned by the larger society that supports it (Gero 1985:342). Archaeologists' notions of the past, research and methodologies, and interpretations are far from value-neutral, but instead are structured, mediated, and constrained by the contemporary social context and the state society that underwrites archaeological endeavour (Gero 1985:342; Gero and Root 1990:19). As well, they are in part informed by archaeologists' aims and interests as players in a social and political arena (Wylie 1991a:21). Current ideologies not only influence how the past is interpreted, but determine to some degree which

topics are considered worth representing, and how they ought to be presented to the public (Jones and Pay 1990:161).

There are two ways in which archaeology articulates with its context (Wylie 1983:120). The first is the way in which contextual factors influence archaeological enterprise. For example, during the 1950s and 1960s, the "Man the Hunter/Killer ape" scenario dominated paleoanthropological perspectives (see Lewin 1987:44), but, by the 1970s and 1980s, "Man" became the "Social Animal," characterized by peace and cooperation. It was not new fossil discoveries that resulted in this shift in prevailing theory, but rather the social climate which influenced interpretations. Paleoanthropologists, as noted by Lewin (1987), were looking to theories to explain the world as they saw it. Therefore, as Alsoszatai-Petheo (1986:23) claimed, interpretation of the evidence often depends more on changing mental sets and cognitive models than on the accumulation of additional supporting evidence.

The second way in which archaeology articulates with its context is in the way that archaeological interpretations are formulated to serve political and economic interests (Wylie 1983:120). In effect, archaeological information about the past is used not only to elucidate a particular past, but often to convey ideological information about the present, and contribute to upholding and reaffirming dominant ideology (Gero et al. 1983:2). In other words, archaeologists not only have a tendency to make the past appear like the present, but also, by doing so, they legitimate, naturalize, and universalize present-day norms and values (Gero 1985:343, 344; B. Olsen 1990:196). For example, researchers tend to judge and analyze cultures within a western frame of reference, and thus impose present values and attitudes onto the prehistoric past. Gero and Root (1990) illustrated how the National Geographic magazine had frequently extended present-day American values both into the past and onto the peoples of the past, presenting a view of the past that had promoted technological progress as cultural superiority, expansionism as scientific inquiry for the benefit of humankind, and democratic state systems as inevitable outgrowths of great civilizations of the ancient world (Gero and Root 1990:34). In addition, Alsoszatai-Petheo (1986) maintained that the current paradigm of assumptions and cognitive models derived from the modern western world view was the reason for the debate over the antiquity of humans in the New World. The modern western emphasis on progress, change, growth, environmental control, innovation, and invention as normal is inconsistent with the realities of many non-western societies, especially present and past hunter-gatherers (see Alsoszatai-Petheo 1986 for a more detailed discussion). Despite this fact, the Paleolithic hunter often is depicted as a rational decision-maker who conducts a cost-

benefit analysis prior to any hunting trip (B. Olsen 1990:196). As Shanks and Tilley (1992:50-51) argued, these assumptions of optimization and maximization of profit for minimum risk and cost for prehistoric subsistence behaviour clearly project the value system of contemporary capitalist economics onto the past.

It is obvious that social, political, ideological, economic, and contextual factors influence the selection of questions and problems, approaches and methodologies, data, what is considered acceptable and valid proof in archaeological research, and the resulting interpretations and explanatory options that will be considered plausible (Kelley and Hanen 1988:100, 277; Wylie 1992a:29). Modern archaeology and science clearly originated from the European intellectual tradition, and the influence of "deep-seated legacies" of this European heritage upon current scientific work further questions the possibility of true objectivity in archaeological and scientific research (Kelley and Hanen 1988:123-124). As Bleier (1984:4) illustrated, science is not a completely neutral, value-free, objective pursuit of truth, and it is simply unrealistic to expect it to be.

The Plurality and Ambiguity of the Past

It can no longer be denied that the cultural milieu and environment in which one works greatly influences the doing of science and academic research, archaeology being no exception. As discussed above, ultimately this realization involves the questioning of not only objectivity, but also processual archaeology's emphasis on positivism, science, and the testing of hypotheses. For archaeology, a major concern then becomes the possibility of ever recovering a real objective past.

It is quite apparent that in the present, symbols, behaviours, institutions, material items, and numerous other cultural and social objects and actions frequently have multiple meanings and values attached to them, perceived differently by the various members within and between social groups. If there is no single meaning or interpretation of the present and its cultural artifacts, why is one meaning in the past expected (Tilley 1991:173)? It is more logical to assume that multiple interpretations existed in the past as well (see also Hodder 1986:149-150). Hence, archaeologists must be careful about supporting reconstructions that suggest single uniform meanings and values for items, concepts, and behaviours in the past. Individuals do not necessarily interpret and give meaning to items and concepts exactly as other individuals within the same cultural group or from other groups do. Not only must the possibility of multiple and opposing meanings and explanations given by different individuals and groups in

the past be considered, but also it must be recognized that because of different cultural contexts and time periods, diverse responses and interpretations can be expected on the part of the modern archaeologist as compared to the ancient actors (see related discussion in Joyce 1993:270).

What does this interpretation mean for archaeology? Essentially, it means that it is highly unlikely that there is a single, fixed, objective, and unalterable past, or a simple, single truth, correct explanation, or cause to account for past events that archaeologists can discover. There was a real past that happened for people; however, those people often experienced and interpreted it in different ways. There are multiple and competing experiences and interpretations in the present, so archaeologists should expect no less for the past.

Moreover, reconstructions of the past are primarily based on material remains, and these are often characterized by biased and limited samples of the total material culture. Thus, as most archaeologists realize, the extreme difficulty of reconstructing the total past from these partial remains further contributes to the ambiguous nature of the archaeological record. Archaeologists can possibly agree on the major events of the past, the functions and characteristics of artifacts, and their chronological placement (although this is not necessarily always the case), but those interpretations and reconstructions that go beyond simple data description to focus on such questions as why and how, can be examined from a multitude of perspectives, and consequently can result in an infinite number of versions. Obviously, archaeologists need to acknowledge that the ambiguous nature of the archaeological record that results from factors of preservation, sampling, variability, and multiple meanings and perspectives, allows for a plurality of interpretations, many of which can be correct to varying degrees. As Tilley (1991:175) argued, making sense out of the past does not necessarily mean producing a single account.

Relativism and the Evaluation of Claims

Since archaeological data are theory-laden, science is not value-free, and multiple and competing interpretations, perspectives, and experiences relating to the past are possible and tenable, it becomes apparent that archaeology can never produce a purely objective account of what happened in the past, a single undifferentiated past (Shanks and Tilley 1992:11). Does this view also imply that archaeologists merely subjectively create their own facts and actively construct the past, and, hence, that archaeology must therefore support an extreme relativism in which anything goes and

in which it is impossible to distinguish between good and bad claims because there are no good or bad claims, all interpreted and reconstructed pasts being valid? This kind of relativism is clearly disabling. For example, Shanks and Tilley (1989, 1992) seem to have portrayed archaeology entirely as a social enterprise, with all archaeological explanation produced under specific social conditions and circumstances and inseparable from this social context and its associated value systems. By viewing the discipline in this manner, accepting that all archaeological claims made about the past can only ever be ideological constructs and can never be accepted or rejected, archaeology becomes nothing more than personal views and claims, never progressing, learning, or increasing our knowledge. Then, as Wylie (1983:126-127) argued, archaeologists are forced to return to a traditional mode of research focusing on technical and empirical aspects, or else use archaeology to further their own interests.

Instead, a more reasonable and mediating position is needed (see discussion in Wylie 1992a:21-22). Recognizing that facts are theory-laden does not necessarily mean that empirical research must be abandoned (Stark 1993:99). Moreover, encouraging the generation of multiple interpretations and recognizing that social and political factors influence the direction of knowledge do not necessarily have to lead to the acceptance of relativism (Bell 1994:86-87, 253, 258). As Wylie (1992a:21; see also Wylie 1983) discussed, archaeologists must recognize that while knowledge is constructed and "bears the marks of its makers," it is also constrained to some degree by external "realities," that is, the evidence or data, that are not created by archaeologists. Whereas archaeological evidence is not a stable, given foundation (since rarely does evidence clearly support a single explanation or conclusion and eliminate all others), it is certainly not completely plastic (Wylie 1992a:25) and so theory-laden that archaeologists can easily create and mold facts to support their theoretical beliefs and preconceived assumptions (Wylie 1993a:25). In other words, while factors such as values, interests, and theoretical background influence what archaeologists see and are expecting to see, and thus play a major role in shaping both the direction and outcome of archaeological research, they do not determine "the shape of inquiry seamlessly, or irrevocably" but can be questioned and challenged on empirical and conceptual grounds (Wylie 1992a:29, 1993a:25). The archaeological record may challenge current interpretations, the data acting as "a *network of resistances* to theoretical appropriation" (Shanks and Tilley 1992:104; emphasis in original). New archaeological data and evaluations can and often do force archaeologists to consider alternative interpretations and possibilities (Wylie 1993a:25). Moreover, it is not only evidence from different dimensions of the archaeological record, but also evidence from a wide variety of

independent sources, lines of arguments, and background knowledge that, entering the process of interpretation at different points, provides constraints as well (Wylie 1992a:25, 1993a:24-25). These prevent archaeologists from falling into total subjectivity and relativism. Therefore, although archaeologists can never construct an objective, final, and true version of prehistory and the human past, there are methods for eliminating some versions of the past and supporting others (Yoffee and Sherratt 1993:6). As Trigger (1989a:409) indicated:

While it is unlikely that scientific procedures can ever wholly eliminate subjective factors from the interpretation of archaeological data, they can significantly enhance the constraints that archaeological evidence exerts upon these interpretations.

This recent concern and interest in relativism, as Murray (1993:112) suggested, is not necessarily indicative of complete disciplinary paralysis but rather is a sign that archaeologists are attempting to deal with the realization that there are many other minds and cultures in addition to their own. In essence, the ultimate problem with relativism lies in the belief that there is no method for judging knowledge claims and deciding between alternative views (Murray 1993:112). Therefore, as Kelley and Hanen (1988:162-163) argued, it is more productive to view archaeological research as attempting to understand phenomena in terms that are not entirely relativistic, with the possibility of considering some accounts as mistaken or incorrect, not simply as different. Consequently, to be able to differentiate between plausible and mistaken claims, archaeologists need to be able to evaluate a piece of archaeological work on some kind of basis.

The problem of the evaluation of competing claims and the determination of what is verifiable about the past has been a central issue for archaeologists over the last several decades (Kelley and Hanen 1988:11). Processual archaeology and its emphasis on scientific methodology have stressed the objective testing of statements against a solid body of fact to evaluate statements, either confirming or refuting them. However, as discussed above, there is not necessarily an "objective" world against which claims and statements can be tested. Archaeologists hypothesize about the dynamics of prehistoric social life, and use the static archaeological record, the so-called results of that dynamic behaviour, to test those hypotheses. In other words, the hypothesis is attempting to connect or illustrate the relationship between the dynamic past and the static record. However, in cases in which the archaeological data apparently support the hypothesis, this interpretation does not necessarily imply that the hypothesis has been

proven to be true. Any number of future situations could disprove it. Moreover, it is possible that any number of dynamics could have produced that same record.

If the scientific method of hypotheses-testing does not always provide a universal and reliable way to evaluate all claims and find the correct and final answers to proposed questions, then how do archaeologists go about evaluating and validating their interpretations and reconstructions? Can such evaluations and validations even be done? First of all, it is important not to accept a hopeless relativism and the belief that it is impossible ever to understand the world in rational terms (Bleier 1984:204). I believe, as Kelley and Hanen (1988:20) maintained, that there is a rational core to "science," a way to distinguish the rational from the nonrational or irrational. As previously noted, archaeologists cannot determine whether claims are true or not, and can never claim that they have arrived at a final comprehensive truth (Wylie 1993b:11). Despite this fact, some propositions and theories can be formulated so that they are testable (i.e., refutable) or vulnerable to error, so that what is *not true* can be determined, what is mistaken can be identified, and what are considered alternative and better theories can be proposed and possibly further tested (see Bell 1994).

In addition to the falsifiability of propositions and claims, an empirical proposition can also be demonstrated to be well confirmed (Kelley and Hanen 1988:36). In other words, conclusions can be accepted if "they provide the best explanation of the data, taking account of all available relevant information" (Kelley and Hanen 1988:345-346). Moreover, accepting these explanations does not necessarily suggest a commitment to the belief that they are true (Kelley and Hanen 1988:362). As Kelley and Hanen observed, the search for knowledge and understanding within archaeology "need not involve a search for *the* true representation of the reality that is our past" (Kelley and Hanen 1988:373; emphasis in original). However, it must be stressed that these conclusions and best explanations are not exempt from being modified, but rather are only contingently best (Kelley and Hanen 1988:345-346). Simply put, acceptance of hypotheses or explanations should be regarded as no more than provisional (Kelley and Hanen 1988:248). Clearly, what is acceptable at any particular time is always a function of what is currently known (Kelley and Hanen 1988:336). With new data and information, new perspectives, and shifting research interests, these so-called best explanations and reconstructions are likely to be altered or eliminated (Kelley and Hanen 1988:345-346; Wylie 1993b:11).

***Pushing Archaeological Inference to its Limits: Expanding Knowledge*¹**

In this research, I am emphasizing gender and individual decision-making. These aspects of the past, unlike subsistence, settlement patterns, and lithic technology, are not reflected in obvious and direct physical ways in the material record. Clearly, archaeologists are faced with limitations when dealing with the archaeological record. Oral histories and ethnographies have indicated the rich lives, traditions, religions, and ideologies of native groups, yet archaeology is often unable to extract this kind of information from material remains alone. For example, in numerous northern native societies, stories were an important part of life and were seen as important property of certain clans and peoples (Cruikshank 1993). Obviously, this kind of non-material behaviour and social interaction is not going to be readily accessible, if at all, from the archaeological record.

Given the nature and limitations of the archaeological record for reconstructing past societies, does this situation mean that archaeologists should ignore aspects such as tradition, religion, gender, social structure, and ideology, and opt for focusing only upon the description of material remains and the examination of aspects of social life that have more direct physical remains? The answer to this question ultimately depends upon how a person defines archaeology and sees his or her role as an archaeologist. While some may argue that archaeology should be primarily the study of material remains from the past, this emphasis could lead to a very mechanical, static, and descriptive discipline. More likely, the majority of archaeologists would probably view archaeology as the study of past cultures, human behaviour, and culture change. Few archaeologists, myself included, believe that the discipline should involve merely the measurement and description of artifacts and material remains and should disregard meaning, significance, and explanation (Shanks and Tilley 1992:244). Items of material culture definitely served functional purposes; however, they were also actively and meaningfully produced, most likely having multiple meanings and significance to various people, and used to negotiate social position and to create change (see Hodder 1986). For example, awls, in general, have been interpreted primarily as functional domestic tools and classified by some archaeologists with such sterile categories as "Household Context or Utilization - Maintenance and Repair" (Spector 1993). Spector (1993) discovered from ethnographic and historic accounts, however, that in addition to a functional use, bone or antler awls were used by each woman in Dakota society to

¹ The phrase "pushing archaeological inference to its limits" originates in an article written by Patty Jo Watson (Watson and Fotiadis 1990).

record the number of hides and tipis on which she had worked. By inscribing the handle, a woman thus displayed publicly her accomplishments.

Archaeology, in my opinion, should not be confined only to the observable and functional or directly testable aspects of material remains and the past. Archaeologists have not hesitated to deal with such abstract issues as style and ethnicity; therefore, why should the study of gender be avoided because of its abstract nature and apparent untestability according to scientific criteria (see Conkey and Gero 1991:14, 20-21 for a similar claim)? Archaeological theories, models, and interpretations, while necessarily grounded in data, often do and should go beyond the data, beyond the evidence available at any particular time; thus, the importance of induction for archaeological interpretation becomes apparent. As Kelley and Hanen (1988:48) argued, inductive inference is essential to scientific progress in order to increase the body of knowledge and to project beyond currently known facts. Deductive reasoning can never go beyond what is already known because the conclusions are contained within the premises (Kelley and Hanen 1988:51, 248); that is, frequently, many reconstructions, interpretations, and hypotheses are merely summaries of observed facts and therefore have no explanatory value (Kelley and Hanen 1988:226). Inductive inferences, on the other hand, go beyond the premises. As Kelley and Hanen (1988:360) stated, inductive reasoning is necessary for archaeological work and research, and necessary to expanding knowledge and understanding of the past.

Hence, contrary to the extreme views of Shanks and Tilley (1992), I believe that through induction, and continual revision and updating based on new data, new perspectives, and critical analyses of previous interpretations, archaeology, while never "discovering" the ultimate truth and reality of the past, can progress toward improved and increased knowledge. This increase in knowledge is exactly what I wish to accomplish by examining aspects of gender and decision-making for Plains Paleoindian populations, and by pushing archaeological inference and interpretation to its limit: a more comprehensive understanding of potential relationships and lifeways operating in the prehistoric past.

Summary

The Importance of Multiple Approaches and Theories

Since clear and precise answers are unlikely to emerge simply from archaeological data, the number of different approaches for solving a certain

archaeological research problem frequently "approximates the number of individual investigators" (Frison 1987:177). In some instances, archaeological studies dealing with the same material record but examined from different perspectives come to similar conclusions, while others result in entirely opposite or conflicting conclusions (Soffer and Praslov 1993:22). As Soffer and Praslov argued, this multiplicity of varying interpretations and perspectives is not a concern but in fact highly desirable, emphasizing that the past, like the present, is a complex, multifaceted entity that is best approached from differing perspectives and angles, "like a three-dimensional, constantly changing jigsaw puzzle" (Soffer and Praslov 1993:22). Different interpretations that can result from different perspectives do not necessarily imply conflict or disagreement, but rather can provide varied yet contextually valid reconstructions of the past. Moreover, multiple and competing theories are crucial for exposing strengths and weaknesses and recognizing anomalies and inconsistencies in current theories (Bell 1994:86, 239).

As Wylie stressed, divergent perspectives and visions in archaeology, rather than undermining the integrity of the discipline, represent the only method for "recognizing where our best guesses, and our most deeply entrenched convictions, are limited and limiting" (Wylie 1993b:12). Different perspectives and views of the past allow for critical comparative analyses, with each potentially offering insights and progress towards a better understanding and illumination of important aspects and variables of the past. There have been multiple methods and perspectives in the past, as in the present, for conducting archaeological research, and many of them have been valid and productive, and have advanced archaeological knowledge. In essence, I see multiple perspectives for interpreting the past as an advantage and strength, a sign of a healthy and vital discipline (see similar claims in Kohl 1993:14; Wylie 1993b:12).

Therefore, I am arguing that instead of restricting themselves to a single universal approach (as many of the early processualists argued for), archaeologists need to recognize that there are a plurality of approaches and perspectives for dealing with archaeological data. This recognition of multiple perspectives and approaches allows for flexibility and variability when one reconstructs the past. However, not all methods and approaches are necessarily the same or equally valid, or produce results as plausible as others. As discussed above, some method is needed for evaluating the adequacy of interpretive methods and archaeological knowledge claims, or else the result could lead to racist, chauvinistic, nationalist, political, and essentially less valid readings of the past (see discussion in Kohl 1993:15). Often the choice of method will depend upon data, questions asked, and research emphasis. The important point is the need to be

critical and rigorous in one's approach. As Wylie (1991b:48) noted, specifically for the development and acceptance of an archaeology of gender, some degree of methodological and theoretical pluralism is essential in the discipline, but this view does not necessarily involve abandoning methodological or theoretical rigour in one's archaeological research. Essentially, I believe that archaeologists need to experiment with different methods and perspectives that are, of course, rigorous and critical in their approach and methodologies, and may lead to the reconstruction of different but valid and plausible pasts.

Clearly, the whole idea of an objective, single, fixed past which can be revealed through the use of scientific methods must be reevaluated. Knowledge is never certain, but rather always provisional, and can be presented at any time in a new framework (Shanks and Tilley 1992: 21). Understanding the past is a dialectical process frequently involving continual revision of ideas, concepts, and interpretations (Shanks and Tilley 1992:108); hence, "any interpretation of the past is multiple and constantly open to change, to re-evaluation" (Shanks and Tilley 1992: 109). Thus, I consider my research as an open-ended (see Joyce 1993:270) exploration of Paleoindian lifeways, not as a universal claim that this was how Paleoindian groups dealt with decision-making, gender, and subsistence activities.

Theoretical Orientation: Summary

The theoretical approach used in this study is chosen with the consideration of the above criticisms and theoretical concerns, as well as the consideration of which approach would be best suited to dealing with the problem of developing models with a focus on decision-making, gender, and subsistence for Plains Paleoindian lifeways. I hesitate to provide a label for this theoretical orientation, and do not want others to label my work as part of a certain paradigm or school of thought, for the primary reasons that labelling is often restrictive and limiting, and that I have used a combination of approaches and orientations from numerous paradigms and perspectives.

First, and very important, gender will be viewed as a dynamic and important construct in social life. Here the relationship and differences between the categories of sex and gender must be considered (see Scott 1988:28-50; Sørensen 1992:34-35). While sex is the physiological distinction between man and woman, gender (male and female) is a social and cultural construct comprising roles given to and identities perceived by men and women in a particular society, that is, learned action patterns that are culturally and symbolically constituted (Gibbs 1987:80; Tilley 1991:164). The

actual relationship between sex and gender is little understood, and it may be that biological sex has relatively little to do with gender. As noted by Whelan (1995:49-50), the concept of gender relates to behavioural traits, such as the proper way of moving, speaking, dressing, and acting in a certain society. In actuality, then, it is typically behaviour and not biological sex that signals the gender of a person. In the archaeological literature, there tends to be confusion and overlap between the category of sex and that of gender; frequently archaeologists claim to be studying gender when they are examining sex and associations perceived in relation to biological sex (Sørensen 1992:35).

Although it is generally assumed that there are two sexes and two corresponding genders, in reality gender is conceived of as more than a dichotomy between male and female. In fact, gender has a multifaceted nature (see discussion in Joyce 1993:271), is contextually determined, and represents a continuum rather than two dichotomous constructs. The same claim can also be made for sex. As Sørensen (1992:35) noted, sex is not simply binary and static; rather, both men and women go through different stages in their biological life. Many North American indigenous societies conceptualized gender in ways radically different from those of western and other state-level societies, and had additional and alternative gender categories to "male" and "female," including, for example, man-woman, or "berdache." For instance, Hollimon (1994) discussed the presence of a third gender, that of transvestite males, among the Chumash of California. Herdt (1994) clearly demonstrated that individuals who transcend the categories of male and female, masculine and feminine, as defined by western culture, are more common in societies throughout the world than traditionally believed. Many studies dealing with gender/sex topics ignore the possibility of alternative genders, although the likelihood of their presence is relatively high. Clearly, through interaction with others, including processes of decision-making and subsistence activities and tasks, individuals continually and dynamically create and reconstruct their gender/sex identity, roles, and relations with other members of their group.

In this study, societies will not be viewed as the "adapting" entity, as assumed by many traditional processual studies and systemic analyses. Having no boundaries or consciousness, societies cannot be adapted or adapting to their environment (Mithen 1990:6; Shanks and Tilley 1987). Instead, following Mithen (1990), it will be the individuals within the group that will be viewed as actively making the decisions to alter their social and physical environment. Thus in this study, the process of adaptation will refer more to processes of fluctuations and adjustments beginning with

individuals, whether they are the result of their responses to environmental stimuli (physical or cultural) or to human choices, learning, and knowledge transmission.

Emphasizing the active individual, this study consequently will focus chiefly on decision-making. Changes in human society that are recorded in the archaeological record are "all ultimately underwritten by people making decisions while going about their daily business" (Mithen 1990:1); thus, the significance of decision-making and individualistic approaches in archaeology becomes apparent. Mithen (1990) clearly demonstrated both the feasibility and value of these types of approaches in his attempt to construct explanations for patterns present in the Mesolithic and Paleolithic archaeological record through a focus on decision-making by individuals (see also Bell 1994:281-305 for a discussion of the use of the individualistic method in archaeological research). The spatial distribution of a population across the landscape, the selection and procurement of food resources and materials needed to make tools, and the exchange of those resources and implements require individuals to make decisions and, at times, act upon them as a group (Bamforth 1988:v). Moreover, it must be remembered that human actions are intentional, involving deliberate choices and motivations; people are capable of understanding and following rules, of judging their actions and those of others, of making distinctions, and, in many cases, of altering the conditions around them (Shanks and Tilley 1992:34-35, 55-56). The claim of Shanks and Tilley (1992:55-56), that "the sheer complexities of human social activities go substantially beyond the basic necessities of survival," is much different from the traditional view that human behaviour and actions are controlled solely by external stimuli, needs, and role expectations (see references in Shanks and Tilley 1992:35).

While the importance of considering the environmental context in which these prehistoric actors made their choices will be acknowledged by briefly considering the late Pleistocene environments of Paleoindian peoples, I will also stress that although human groups are closely tied, interconnected, and responsive in complex ways to their environment, ultimately all decisions, including those focusing on acquisition of food and resources, are embedded in a social context. Hence I am attempting to move away from a simple environmental determinism, with the realization that subsistence choices and activities are not only influenced by environmental factors but also by social dynamics such as preferences, cooperation, sharing, information exchange, gender, obligation, relationships, ritual, and religious and ideological beliefs that ultimately shape cognition. In this study, the subsistence and settlement behaviour of a group of hunter-gatherers will be viewed as the result of a set of decisions and choices made by

individuals and groups which resolve specific interrelated problems (Jochim 1976:8) and which are simultaneously affected by both environmental and social variables.

Using this theoretical position as a base, my work will aim to critique the traditional Paleoindian model, exposing its errors and unquestioned assumptions. I will then construct a model from an alternative perspective and emphasis, using, in a critical and rigorous manner, ethnographic analogy as the primary method of analysis. The approach outlined above, while different from the traditional processual archaeological emphasis on scientific methodologies and ideas of hypotheses-testing, positivism and empiricism, does not imply a total rejection of the scientific method. As previously noted, I disagree with the position of extreme relativism advocated by many of the critics of science. Instead, I believe strongly in the importance and value of scientific rigour and methods. The actual process of science, however, does not only involve hypotheses-testing and adherence to positivism and the search for objective truth, but rather, consists of various techniques. As Bleier (1984:4) noted, there is no single correct scientific methodology. Science is not a monolithic entity, but rather an "enterprise composed of numerous and different goals and tasks," employing alternative tools and methods for those various goals and tasks (Bell 1994:26). Despite the fact that I am not employing a rigid positivism and hypothetico-deductive perspective which was strongly advocated by some earlier processual archaeologists, I am not sacrificing rigour or critical methodology in my research. I still view my work as a scientific enterprise, emphasizing reason, logic, rationality, and consistency in my analysis. There is no need for a dichotomy to exist between gender theory (a more contextual and symbolic approach) and scientific theory (see related discussion in Wylie 1991b:48). In some cases, gender models can be treated rigorously and tested. In other cases, models of gender can be relatively abstract and untestable according to scientific criteria. But this situation does not necessarily imply that the results and interpretations were derived using non-rigorous methods, and should therefore be considered less valid than those that have been subject to testing.

My approach, by focusing upon decision-making, gender, and the individual, will provide more critical and dynamic conceptualizations and considerations of Paleoindian strategies, behaviours, and their variability, in comparison to the production of the stylized, mechanistic, and rigid pictures that frequently result with typological and analogical studies and the societal group adaptation view of hunting-gathering groups often characteristic of more recent processual archaeological work. In making this statement, though, I am not claiming that my approach is singularly the best method for doing theoretically sound archaeology, that it will provide a complete theoretical

framework to explain Paleoindian hunting-gathering subsistence and settlement patterns, that there should be a universal theoretical perspective and methodology for approaching archaeological research, or that my resulting interpretations and constructions reflect the past exactly as it was for Paleoindian peoples.

Moreover, it does not imply that I am totally rejecting processual archaeology and its methodologies and research. In many cases, processual research has been very productive and enlightening; moreover, as some post-processualists (e.g., Shanks and Tilley) fail to realize, not all of it has necessarily supported the extreme positivism and hypotheses-testing views advocated by the earlier New Archaeologists. These post-processualists have a tendency to adopt an ahistorical perspective when criticizing processual archaeology, focusing on earlier processual work and claims, most of which were never actually accepted or practised by all archaeologists (see discussion in Yoffee and Sherratt 1993:4-5). In reality, many archaeologists soon realized that a search for universal laws, as the early processualists strongly promoted, was futile; thus, not all processualists were and are searchers for cultural laws, supporting extreme functionalist, adaptationist, positivist, and reductionist ideas of culture.

I, therefore, do not want to paint a generalized and inaccurate picture of processualists, simplifying and misrepresenting science and processual archaeology in the process, as Watson (1990) claimed post-processualists have done. What I do question, though, is the claim that an approach revolving around positivism, empiricism, and hypotheses-testing is the only correct way to do archaeology. In fact, positivism and empiricist science and archaeology is only one mode of perception and explanation (Shanks and Tilley 1992:xxii). And while, as mentioned above, many processual archaeologists have done important and vital work, the frequent focus on typology, adaptation, systems analysis, objectivity, universal laws, and a rigid positivism and hypotheses-testing approach by some has tended to lead to the perpetuation of unquestioned assumptions and the uncritical use of selective ethnographic analogies. Clearly, the use of a scientific approach and hypotheses-testing does not necessarily guarantee meaningful work. I do not, however, wish to deny the importance of testable theories and the use of scientific standards when assessing, modifying, or rejecting theories. As Bell (1994) demonstrated, the use of testable (i.e., refutable) theories, while never discovering the truth, can greatly assist archaeologists in moving toward better theories about the past by exploiting errors in currently accepted theories, reducing that error, and discovering what is not true. Nontestable theories, however, can also be of some value and can provide a perspective from which to identify weaknesses in competing theories (Bell 1994:53). Consequently, a theory

should not be dismissed merely because it is not testable (Bell 1994:53). Moreover, at some point a nontestable theory may actually evolve into a testable theory (Bell 1994:53).

There is obviously a need to develop different but critical ways of looking at the archaeological record for reincorporating active people back into prehistory, and for providing a wider perspective and alternative viewpoints rather than limiting the focus exclusively upon tool types, adaptation, subsistence strategies, and selective and unquestioned analogies. As Wylie (1991b:47) argued, Binford's scientific approach and focus on evolutionary, adaptive patterns, and functional adaptations, while yielding important explanatory insights, will result in the loss of much interesting and relevant explanatory detail that can be provided by a perspective such as gender.

OUTLINE AND PROCEDURE

In the remainder of the dissertation, my aim is to criticize the Paleoindian big game hunting model, revealing, as I see it, the major shortcomings, and to develop a more balanced view of Paleoindian lifeways. The following chapter will provide a broad theoretical framework on which the research will be based, outlining the explosion of gender-related research and data that has occurred in recent years in anthropology and archaeology, and critically examining the portrayal and analysis of gender in anthropological and archaeological research. Chapter III will continue this discussion of gender, narrowing the focus to developing a critical, plausible way for archaeologists to examine gender.

The following chapter will then shift the emphasis in the dissertation by introducing the subject of the Plains Paleoindian period. In recognition of the importance of examining the historical contexts of discovery and interpretation, this chapter will outline the historical development of Paleoindian research in North America in order to reveal the theoretical and intellectual context in which ideas and models have developed and influenced how the past was interpreted. In Chapter V, this consideration of Paleoindian studies will be expanded through a critical analysis of the development of the big game hunting model that will expose the underlying, unquestioned assumptions upon which it is based. At this point it will be necessary to introduce the broader context of Plains archaeology in order to demonstrate the origins of the limitations characterizing the Paleoindian model. Using as a basis new paleoenvironmental evidence, gender research, archaeological data, and the theoretical position outlined above, Chapters VI and VII will proceed to construct an alternative

model for Paleoindian lifeways. The final and concluding chapter will discuss the implications of this research, any limitations and problems encountered, and the prospect for future research.

Archaeological and paleoenvironmental data will be collected exclusively from the Northern Plains of North America, which, in this case, will include the Plains region bounded by the Rockies on the west, extending eastward into the Dakotas using the Missouri River arbitrarily as an eastern boundary, southward to and including Wyoming and northern Colorado, and bordered on the north by the provinces of Alberta and Saskatchewan. An emphasis will be placed on the area of Wyoming/Montana, as it appears more abundant Paleoindian information can be derived from these regions.

The temporal period for this research must also be specified. The focus will be upon the time range of approximately 11,000 to 10,500 years ago, a time experiencing the dramatic climatic warming of the late Pleistocene-early Holocene. Because of the rapidly changing conditions of the late Pleistocene, a time range as narrow as possible should be chosen, yet the limitations and accuracy of dating techniques and the lack of well-dated in situ Paleoindian sites on the Plains must be recognized as well.

CHAPTER II

GENDER RESEARCH IN ANTHROPOLOGY AND ARCHAEOLOGY

INTRODUCTION

It was not until the advent of feminist theory in the 1970s that a specific interest in studies of women and gender developed in anthropology (e.g., Albers and Medicine 1983; Dahlberg, ed. 1981; Friedl 1975; Matthiasson, ed. 1974; Ortner and Whitehead, ed. 1981; Reiter, ed. 1975; Rosaldo and Lamphere, ed. 1974; Sanday 1981; Tiffany, ed. 1979). A similar interest, however, was slow to develop in the field of archaeology (Wylie 1991a:17; see Wylie 1991a, 1991b for detailed discussion and explanations to account for this late development), and only recently has the study of gender become an active and growing area of research in archaeology (e.g., Claassen, ed. 1992; Conkey and Spector 1984; du Cros and Smith 1993; Gero and Conkey 1991; Gibbs 1987; Jochim 1988; Kornfeld, ed. 1991; Spector 1983, 1993; Walde and Willows 1991). The purpose of the next two chapters is, first, to provide a broad perspective of the historical development of gender studies in both anthropology and archaeology, critically examining the theoretical approaches and models that have been used to study gender. The following chapter will narrow the focus of this theoretical background on gender with a discussion of the significance and implications of conducting gender studies in anthropology and archaeology, and, more importantly, a consideration of how exactly an archaeologist should or can approach aspects of gender, or if it is even possible to examine and reconstruct gender relations based on archaeological evidence.

HISTORY OF THE DEVELOPMENT OF GENDER STUDIES IN ANTHROPOLOGY

Introduction: Early Gender Studies and Claims for Male Bias

The sexual division of labour and other gender-related topics have long been of some general interest in anthropological research (see Rogers 1978 and Sacks 1979 for more detailed discussions of the interest in sex, gender roles, and women in early Victorian and more recent anthropology). In the mid- to late-nineteenth century, numerous scholars, including Lewis Henry Morgan and Friedrich Engels, supported the idea that matriarchal societies had existed as an ancient phase of human life. Eventually

this rule of women or "mother right" had been overthrown by men with the creation of private property and monogamy (e.g., see Bachofen 1861, 1967:69-207; Engels 1972:120; Morgan 1965:66, 128), leading to, as Engels (1972:120; emphasis in original) termed it, the "*world historical defeat of the female sex*." Late nineteenth-century discussions of human evolution, such as the work of Darwin (1874:723-727, 766-768), also touched on gender-related aspects by including themes of male superiority, male competition for possession of wives, and male choice in sexual selection. In addition, a few anthropological studies in the early and middle part of the twentieth century emphasized gender topics, such as Murdock's (1937) comparative study of ethnographic data dealing with the sexual division of labour, and Evans-Pritchard's (1965) comparison of the position of women in "primitive" societies and in western society.

Later interpretations of the economic and social life of early human society also dealt with issues related to sexual division of labour and gender primarily through an emphasis on hunting. Most classic models placed the hunter at the centre of the new Homo adaptation and tied it in with tool use (e.g., Dart 1953; Washburn and Lancaster 1968). Hunting provided "the master behavior pattern of the human species" (Laughlin 1968:304). As Dahlberg (1981:1-2) and Zihlman (1981:82, 1991a:5) noted, many researchers believed that it had been the demands of the hunt (which was considered an all-male activity) and meat-eating that had separated humans from the apes, producing human characteristics such as intelligence, manual skill, tool making, sociability, language, bipedalism, and cooperation. For example, Washburn and Lancaster (1968:293) stated that "in a very real sense our intellect, interest, emotions, and basic social life--all are evolutionary products of the success of the hunting adaptation."

But the "Man the Hunter" conference held in Chicago in 1966 had a great impact and influence on the discipline. The information presented in the resulting volume (Lee and DeVore, ed. 1968), especially Richard Lee's (1968) study of women gatherers, provided the basis for questioning the hunting model, and for shifting attention to women as being important in collecting, processing, and distributing food to other group members. Women, for the first time, were recognized as contributing significantly to the subsistence activities of hunter-gatherers, and as having multidimensional lives integrated into a wider society (Zihlman 1991a:6).

This new research interest in gender, and in particular, female roles and activities, was further advanced by the feminist movement of the 1970s. One result of this interest was the publication of numerous studies and articles identifying so-called androcentric or male bias in the anthropological literature, one of the first being Sally

Linton's (1971, later published as Slocum 1975) exposure of the male bias in the "Man the Hunter" model, classically portrayed by Washburn and Lancaster (1968) (Dahlberg 1981:3). Linton (1971), followed by others (Dahlberg 1981; Zihlman 1981, 1991b), claimed that reconstructions of early human social life such as the "Man the Hunter" model, while revolving around male aggression, male dominance, and male hunting, simply had neglected to consider women as active participants in human culture. The "Man the Hunter" scenario, in essence, was seen as leaving out half the human species (Slocum 1975:39, 42; see Bleier 1984 for a more recent critical analysis of the "Man the Hunter" theory). Males had been portrayed as the protectors of females and controllers of the mating process, and as the players of a major economic role by providing the greatest portion of the diet (i.e., meat); therefore, while the men had been out hunting, developing cooperative skills, language, art, tools, and weapons, the dependent females had remained at the homebase having one child after another, waiting for men to bring home the food, and essentially fading into reproductive, passive, and invisible roles (Slocum 1975; Zihlman 1981:75). It was argued that these male-oriented reconstructions wherein males played the main economic role (hunting) and main reproductive roles (mate choice) had dominated the last 100 years of discussions on human evolution, with Darwin's approach being a classic and early example (Zihlman 1981:76-77, 85).

These claims of "male bias" were not limited only to reconstructions of early hominid social life, but were also made for the discipline as a whole. Essentially, it was argued (e.g., Friedl 1975:4; Kessler 1976:9; Tiffany 1979:5; and more recently, Conkey and Spector 1984:4; Fratt 1991:246; Kehoe 1992:25; Trocolli 1992:96) that, in the past, because anthropological studies had been primarily undertaken by western, white, mid-upper class men, anthropological and, in particular, ethnohistorical accounts had tended to mute women; that is, they had paid little attention to women's activities, had focused on male informants and male activities, and when women were actually considered, had only discussed supposedly female concerns, that is, domestic concerns. Numerous classic and influential anthropological works, such as the work of Levi-Strauss and Malinowski's (1922, 1929) seminal field research in the Trobriand Islands of Melanesia, were identified by researchers (e.g., Etienne and Leacock 1980:3; Weiner 1980:275) as neglecting and consequently distorting the roles and activities of women.

The reasons given for this neglect of women in anthropological studies included the following: the belief that the more public male sphere of activities was considered to be more significant in understanding the society (Kehoe 1992:25), unlike the more domestic female sphere which was believed to be shaped either by natural constraints or

by dynamism associated with men (Rosaldo 1980:408-409); and the assumption that the male perspective was more representative of the entire culture. It was argued that male views on women had tended to be accepted as fact (Reiter 1975a:12; Russell 1991:347; Tiffany 1979:5), whereas female views had been either considered peripheral to the norm (Conkey and Spector 1984:4) or else assumed to be identical to men's perspectives of humanity (Tiffany 1979:20). For example, Lederman (1990:45, 54) claimed that for studies of New Guinea Highland societies, the common style of ethnography had portrayed male statements and actions as representing the whole of social reality. Also viewed as partially responsible for the neglect of women in anthropological research was the "myth of the male ethnographer and the woman's world" (see Gregory 1984), which purported that the women's world was inaccessible to male ethnographers, or as Ardener (1975) suggested, that only the models of the dominant groups of a society, that is, the men, were expressed in the public sphere and received by ethnographers.

Whatever the cause, it was claimed by numerous writers that the overall result of this neglect of the female world, combined with the so-called deeply rooted male orientation in anthropology (Reiter 1975a:12), often had led ethnographers to describe women relative to men (Conkey and Spector 1984:4; Ortner and Whitehead 1981:8) while men were defined in terms of their status and role categories (Ortner and Whitehead 1981:8). Moreover, it was argued that anthropologists portrayed women as submissive, peripheral, inferior, passive, weak, and controlled by male groups (Etienne and Leacock 1980:4; Lamphere 1974:97-98), and that they viewed women as sources of contamination and pollution which reflected both their subordination to men and the cultural derogation of females (Gottlieb 1990; Tiffany 1979:20; e.g., see Young and Bacdayan 1965:230 and their examination of menstrual taboos). It was also suggested that researchers represented women as commodities of exchange in male-controlled marriage activities (Bell 1980:266; Tiffany 1979:16; e.g., see Hart and Pilling 1960 and their discussion of the Tiwi of North Australia), and viewed women as excluded from the male spheres of religion and art (Russell 1991:346) and politics (Collier 1974:89; Tiffany 1979:13).

With regard to the sexual division of labour, Reiter (1975a:12) argued that what women did had been often perceived as household work and gossip, while men's activities had been seen as forming the economic base of society and consisting of vital social communication. Specifically referring to subsistence roles, Cucchiari (1981:42) claimed that men had been always viewed as hunters, no matter what proportion of their subsistence activities was spent in the pursuit of game. Despite observations that

women often hunted small animals in the course of their subsistence activities, this practice had often been termed "collecting" (Cucchiari 1981:42), and the focus instead had been placed on the domestic activities of females, which were believed to take up the majority of their time. Moreover, it was argued, these domestic activities had been often denigrated. Berndt (1981:176-177) claimed that for studies of Australian Aborigines, women's work (i.e., "domestic" chores) had been considered by early male ethnographers to be unexciting, monotonous, repulsive drudgery, and work only the weaker sex would do or be forced to do. Clearly this belief was evident in Service's (1966:10) claim that women's work amongst hunter-gatherers was never done, was dull, repetitive, unromantic, and usually unremarked.

Many scholars (e.g., Leibowitz 1975:22) identified the ultimate root of these "androcentric" reconstructions of women's lives and the sexual division of labour as expressive of the underlying belief prevalent in early and later ethnographic studies that because men and women were physically different, they tended to have intellects and emotions that made them suited for certain kinds of roles. In other words, as Conkey and Spector (1984:8) argued, women were seen as restricted by their biological characteristics associated with pregnancy, lactation, and childbirth, and almost immobilized by their presumed roles in child care. Many anthropological studies (e.g., Evans-Pritchard 1965:46, 50, 51-52; Gough 1975; Murdock and Provost 1973:211-212; Service 1966:10, 40, 50), including some by early feminists (e.g., Sanday 1981:77-79), assumed a strict division of labour in which men were in charge of the public sphere, had greater authority and respect, and were the only ones who hunted (hunting being central to the human adaptation), and who processed hard raw materials such as metal, stone, bone, and wood; women, however, being restricted by child care, were confined to the household, worked with softer materials to produce pottery, basketry, and mats, and were accepting of the fact that their lives revolved around the camp, chores, and family. In essence, both earlier and later writers (e.g., Berndt 1981; Conkey and Spector 1984; Dahlberg 1981; Gottlieb 1990:115; Linton 1971; Reiter 1975a; Tiffany 1979; Zihlman 1981) who set out to reveal the androcentric nature of anthropological research were arguing that anthropologists and archaeologists had denied women an active place in social life.

The Anthropology of Women

While the roots of gender studies in anthropology can be extended back to the significant work of Margaret Mead (1935, 1949) and Phyllis Kaberry (1939, 1952)

(Miller 1993:9-10), it was not until the identification of this apparent male bias, neglect, and distortion of the roles and activities of women in ethnography and anthropological studies in the 1970s and 1980s that numerous researchers shifted their focus to the study of women, their actions, their thoughts, and their perceptions (e.g., Albers and Medicine 1983; Dahlberg, ed. 1981; Etienne and Leacock, ed. 1980; Kessler 1976; Martin and Voorhies 1975; Matthiasson, ed. 1974; Reiter, ed. 1975; Rosaldo and Lamphere, ed. 1974; Sanday 1981; Tiffany, ed. 1979). This phase, identified as the "anthropology of women" by Moore (1988), was characterized by calls to bring women back into anthropological studies in an attempt to build up new data on women and their activities in order to counter a male, western, ethnocentric bias that had been identified in the discipline (Miller 1993:11; Moore 1988:1-2). What resulted was an increased visibility and knowledge of the productive roles and activities of women, and consequently the redefinition of questions and theories, and the formulation of new proposals and reconstructions relating to human social life and, in particular, women's roles in it. For example, with regard to human evolutionary studies, the increasing number of anthropological studies focusing upon females in both human societies and other primate groups led to the proposal of numerous reconstructions involving alternative views of sex roles in human evolution (e.g., Fedigan 1986; Linton 1971; Morgan 1985). Women were now being added to the picture of hominid evolution; moreover, they were given active roles. For example, Tanner and Zihlman (1976), Zihlman and Tanner (1978), and Zihlman (1981) argued that female gathering, not male hunting, was the initial food-getting behaviour that had distinguished ape from human, and had provided the evolutionary basis for the exchange of food.

Other anthropological studies that resulted from this increased attention given to the study of women focused more on explanations to account for the status, position, and roles of women in various cultures and societies. For example, in view of the increasing ethnographic and anthropological knowledge dealing with women, several anthropologists proposed a universal division of the world into a domestic/private/female sphere and a public/outside/male sphere (e.g., Kessler 1976; Lamphere 1974:100; Ortner 1974; Reiter 1975b:275; Rosaldo 1974). Both Rosaldo (1974:23-24) and Ortner (1974) argued that because women spent most of their time giving birth and raising children, this role had led to a differentiation of domestic and public spheres of activity. The data suggested to them that women were absorbed primarily in domestic activities and their economic responsibilities were constrained by responsibilities of child care and the home, whereas men had more freedom to "form society" (i.e., political and military spheres). According to Rosaldo (1974:30-31), the

result was that men tended to be defined in terms of their achievement in socially elaborated institutions, seen as the world of culture, whereas females were defined in terms of their sexual functions and biological ties to men, the world of nature. Ortner (1974) furthered the argument, stating that because women were associated with nature, rather than culture, they were devalued and subordinated. This domestic/public dichotomy and the nature/culture opposition outlined by Ortner (1974) were very similar in that they had both ultimately originated from an emphasis on woman's role as mother and rearer of children (Moore 1988:21).

The domestic/public dichotomy has been a very powerful model in social anthropology (Moore 1988:21), and has been advanced as a universal model for the explanation of a belief held by many early feminist anthropologists on the universality of male dominance and women's subordination (e.g., Ortner 1974:72; Rosaldo 1974:41). The work of Margaret Mead (1949) and Simone De Beauvoir (1953) first raised issues of sexual inequality from a cross-cultural perspective (Sanday 1990a:1). Both had assumed the universality of sexual asymmetry and male dominance, and as Sanday (1990a:2-3) noted, the influence of these ideas on subsequent development of anthropological theory and gender relations, especially with the idea of the private/public dichotomy, has been enormous. During the 1970s and the growth of anthropological studies dealing exclusively with women, many anthropologists began with the underlying assumption that there was a universal asymmetry in cultural evaluations of the sexes. Women were considered universally devalued as the second sex and subordinated to men, only having informal influence and power, whereas men had power over women, and had more opportunities for public influence and prestige in every known society in the world (e.g., Cucchiari 1981:33; Friedl 1975:5, 7; Kessler 1976:12; Ortner 1974:67-71; Ortner and Whitehead, ed. 1981:x; Rosaldo 1974:17, 21, 1980:393-394; Rosaldo and Lamphere 1974:3). It must be noted, however, that this belief in the universal dominance of men over women was not limited only to these early feminist anthropologists, but was also supported by numerous other researchers in the discipline (e.g., Evans-Pritchard 1965:54). Moreover, it was argued that this belief in the inferiority of women was not only held by both the male and female members of a cultural group, but also accepted and perpetuated by women themselves (e.g., Rosaldo and Lamphere 1974:1). For instance, Kessler (1976:28) argued that women had been taught by tradition that being a woman was not desirable. Moreover, women's failure to grasp and demand opportunities to wield authority was due to their belief that such positions belonged to the male sphere (Kessler 1976:69). Essentially, Kessler implied that women were controlled by traditions that had been basically created by men, and

that, inevitably, women accepted their society's assessment of their worth (Kessler 1976:163).

Feminist Anthropology

As the interest in the "anthropology of women" grew, resulting in a burgeoning amount of new ethnographic data and revised interpretations and reconstructions focusing exclusively on women, numerous researchers began to shift their attention to the critical reworking of the universal category of "woman," and to the question of whether or not women were specially qualified to study other women (see Moore 1988 for a detailed discussion of the history of the development of feminist anthropology). In other words, was the so-called "male bias" that had been identified in the discipline simply being replaced by a corresponding "female bias" (Moore 1988:5)? If female ethnographers were privileged when studying women, as Kessler (1976:143) appeared to claim with her suggestion that women would talk more freely to other women and thus female anthropologists had greater access to the private domain, then essentially this supposition would cast doubt on the ability of women to study men, and ultimately cast doubt on the whole of anthropology (Moore 1988:5). As Moore (1988:5) noted, why should a female model of the world be considered better than a male model?

This questioning of the privileged status of female ethnographers (e.g., Milton 1979; Strathern 1981) led to a fear that the "anthropology of women" would become isolated within the discipline, consisting only of women studying women (Moore 1988:5). What resulted from this consideration was the establishment of new approaches; in particular, a shift occurred from the study of women to the study of "gender." These approaches included the examination of the interrelations between women and men, and the role of gender in structuring human societies and their histories, ideologies, economic systems, and political structures (Moore 1988:6). Instead of simply demonstrating the variety of women's experiences, activities, and situations worldwide as the "anthropology of women" studies had tended to do, the focus was now placed on differences among women, and in particular, social and historic contexts, with the recognition that cultural difference was only one form of difference. Theoretical questions were now formulated in terms of how economics, kinship, and ritual were experienced and structured through gender, rather than in terms of how gender was experienced and structured through culture (Moore 1988:9). New attempts were made to build theoretical constructs and ultimately to reformulate anthropological and feminist theory (Moore 1988:11). This new "Feminist

Anthropology" was not simply about "adding women" into the discipline, but about confronting conceptual and analytical inadequacies of anthropological theory (Moore 1988:4; for recent examples, see articles in di Leonardo 1991 dealing with various aspects of feminist anthropology and the study of gender).

HISTORY OF THE DEVELOPMENT OF GENDER STUDIES IN ARCHAEOLOGY

Gender and Early Archaeological Research: Claims for Male Bias

As has anthropology, archaeological research has always shown some interest in issues of gender. However, most of these earlier archaeological studies that had included aspects of gender in their reconstructions and interpretations did not focus on the explicit examination of gender; rather, they ultimately resorted to relying upon underlying assumptions about gender and sexual division of labour in order to examine other issues such as kinship, social organization, ceramics, and subsistence patterns. In other words, gender was often given only indirect consideration in that it was seen as having a more passive than active role, with interpretations dominated by static unquestioned notions of gender (see both Bolen 1991:400 and Conkey and Spector 1984 for a similar claim). For example, Deetz (1965) based his analysis of the possible relationship between changes in social organization and changes in stylistic attributes of Arikara ceramics on preconceived, underlying assumptions about gender and Arikara sexual division of labour.

Influenced by gender feminist theory and what was occurring in anthropology in the 1970s with the study of women and gender, several archaeologists in the 1980s began to examine gender more critically and in more detail, making claims for the presence of androcentric and ethnocentric bias in archaeological research (e.g., Bolen 1992; Conkey and Spector 1984; Eisner 1991; Gero 1983, 1985, 1991a; Mitchell 1992). Many of these researchers claimed that archaeology had practised a "masculinist construction of the world" (see Bolen 1992:51). It was argued (e.g., Bolen 1992:53; Conkey and Spector 1984:13-14; Eisner 1991:352; Mitchell 1992) that in the archaeological literature the contributions, activities, perceptions, and perspectives of females had been generally trivialized, stereotyped, or simply ignored; that is, men tended to be portrayed as active, aggressive, and important, and, as the major protagonists in humanity's past, more responsible for group maintenance and protection, while women, by being accorded a secondary or incidental dependent role, were

considered as nonactive agents in prehistoric contexts, being confined to the domestic sphere where their activities were restricted by their roles as wives and mothers.

Moreover, it was argued (e.g., Conkey and Spector 1984:7) that there had been tendencies amongst archaeologists both to link certain activities and artifacts with each sex with no justification or support for these associations, and to place greater value and more emphasis on the roles, artifacts, and activities associated with males. Furthermore, Bolen (1992:53) maintained that in the archaeological literature, archaeologists had typically assumed that women did not make formal tools. The observations of women making and using stone tools ethnographically were essentially dismissed as exceptions.

The primary reasons provided by Conkey and Spector (1984) for this so-called ethnocentric and androcentric bias in the archaeological literature included, first, the dependence upon the ethnographic record (which had already been argued by feminist anthropologists to be androcentric because of its focus on male informants and male activities) in structuring archaeological work (Conkey and Spector 1984:3), and, second, the derivation of implicit, rather than explicit, assumptions about gender from both the androcentric ethnographic record and the researcher's own culture-bound notions about gender (Conkey and Spector 1984:5). By relying upon these static and unquestioned views of the division of labour and gender roles (such as the implicit assumption that in prehistoric hunting-gathering societies, males hunted and made and used stone tools, and females gathered and did domestic work), it logically followed that archaeologists would be led to believe that women were less visible than men in the archaeological record (Bird 1993:22). For example, Thomas (1983, cited in Kornfeld 1991:2) created what he termed the "Amazingly Invisible Women," arguing that male ecofacts (bone) and artifacts (projectile points) had much higher visibility than female counterparts (Kornfeld 1991:2); his underlying assumption was shared by many other archaeologists (e.g., Hayden 1977:185, 1979:14). Isaac (1979:121) clearly implied that because women had strictly gathered plants and men had strictly hunted animals, this dichotomy had led to the general invisibility of women in the archaeological record:

It is clear that as long as we do not correct for the imbalance created by the durability of bone as compared with that of plant residues, studies of human evolution will tend to have a male bias! (Isaac 1979:121)

Theoretical Approaches to Gender Studies in Archaeology: Gender Feminist Theory and its Contribution to Archaeology

With these relatively recent claims for androcentric and ethnocentric bias in past and present archaeological work, numerous archaeologists have argued that there is a need for a new perspective and theoretical approach for the archaeological study of gender. It has been argued that the positivist processual scientific method is not an appropriate framework for studying gender as a cultural aspect (see Hodder 1991:15), and is not sufficient to guard against distortions that can persist when researchers "operate with a set of conceptual blinkers" (see Wylie 1991a:22). Even more recent post-processual archaeology, with its emphasis on plurality, relativism, and the active participatory nature of material culture (Damm 1991:130), has been criticized for the way it deals with, or, more correctly, does not deal with gender studies, continuing in the same androcentric vein as processual archaeology, and lacking an understanding of gender as historically, socially, and symbolically constituted (see Engelstad 1991:118-119; Wylie 1992a:17). Therefore, many of these archaeologists have advocated that an alternate theoretical approach is needed in archaeology in order to correct the androcentric and ethnocentric biases prevalent in the discipline, and thereby both to view the social world as a creation of both male and female actors, and to incorporate gender as a multifaceted, highly variable cultural construct.

Recently, numerous archaeologists (e.g., Bolen 1992; Conkey 1991; Conkey and Gero 1991; Conkey and Spector 1984; Maurer 1991; Spencer-Wood 1991; Wylie 1991a; see also articles in du Cros and Smith 1993) have begun to draw upon the growing body of theory from over two decades of gender feminist theory and studies. Postmodernist gender feminist theory has questioned the validity of the scientific method, arguing that an androcentric bias has pervaded science for a long time, obscuring "women's" experience and perspectives (Wylie 1991b:41). The theoretical approach of gender feminism does not simply involve adding the topic of gender: it also includes critiques and deconstructions of androcentric models, assumptions, and categories, as well as the identification and correction of these biases and subjectivity in gendered and ungendered constructions of the present and past (Eisner 1991:352; Spencer-Wood 1991:234-235). Moreover, while gender feminism provides room for pluralism, that is, a variety of interpretations and a variety of readings, it is not merely about alternative scenarios or replacements (Conkey 1991:28). Gender feminist researchers do not consider their perspective as alternative to or just as credible as those resulting from androcentric paradigms. Instead, one of their major goals is to expose error and improve on previous accounts (Wylie 1991a:21), not by simply adding

women and focusing exclusively on women, but by reconceptualizing all key ideas of those previous androcentric analyses (Wylie 1991a:22). As well, such feminist theory views gender as a multifaceted social phenomena, rather than a biological classification, that varies cross-culturally and temporally (Conkey and Spector 1984:15, 16). Gender is considered important for understanding not only male and female experiences but for other phenomena such as class, states, and social change (Conkey 1991:29).

In recent years, gender feminist analysis has thus emerged as a catalyst for skepticism about entrenched conceptions of women and gender (Wylie 1991a:20), and recently this movement has become especially relevant for archaeology. It has been suggested (e.g., Conkey 1991:27) that gender feminism, with its scrutiny of western concepts and with its critical self-positioning, is able to provide the means by which archaeologists can take apart the stereotypical givens and generate not just alternatives but replacements that are explicitly positioned. Moreover, many researchers (e.g., Bolen 1992:53-54; Conkey 1991:27; Maurer 1991:415) have argued that one of the main values for archaeology of gender feminist studies is its reinstatement of the individuals and agents behind the appearance of artifacts and technology as active participants in and creators of their world, who made decisions, and were not merely passively buffeted by processes. When archaeologists consider how and in what contexts women were active participants and agents in society, previously unexamined assumptions about the human past are questioned and restructured (Conkey 1991:27).

Many of these archaeologists believe that the archaeology of gender based on such feminist theory is not simply political (e.g., Wylie 1991a:22, 1992a), but a better way of doing archaeology. Furthermore, Claassen (1992:6) even stated that everything in archaeology can and should be examined from a gender perspective, since, as Bolen (1991:400) indicated, gender relations are involved in and constitute all aspects of human society. It has been argued that if archaeologists are ever to have a more complete, and more humanized picture of the past, a critical archaeology of gender and the incorporation of gender as an active agency contributing to the production of the archaeological record are indispensable to the discipline as a whole (see Bolen 1991:400; Conkey 1991:29; Wylie 1991a:18; Zihlman 1991a:8).

CRITICAL ANALYSIS OF GENDER RESEARCH IN ANTHROPOLOGY AND ARCHAEOLOGY

Major Contributions of Early Gender Research: The Explosion of Previous Assumptions

As mentioned above, with the feminist movement and the numerous claims made for "male bias" in anthropological research, new ethnographic studies and reanalyses of previous works were undertaken in an attempt to correct this perceived bias. These studies (e.g., Albers and Medicine 1983; Dahlberg, ed. 1981; Friedl 1975; Matthiasson, ed. 1974; Ortner and Whitehead, ed. 1981; Reiter, ed. 1975; Rosaldo and Lamphere, ed. 1974; Sacks 1979; Sanday 1981; Tiffany, ed. 1979) focused on highlighting the roles and contributions of women in specific cultures, and examining female participation and influence in various institutions (Conkey and Spector 1984:17). Two valuable contributions of these works included firstly, their illustration of women as active agents in the social life of a multitude of cultures, and secondly, their questioning of notions common in the anthropological and ethnographic literature that had suggested women's roles and tasks were limited. Consequently, many of the simplistic and rigid notions of sexual division of labour often present in the archaeological literature were challenged as well (Conkey and Spector 1984:16-17).

As a result of these studies, the enormous cross-cultural range of activities undertaken by women came to light, exploding numerous previously-held assumptions, especially the notion that hunting was exclusively a male activity. Ethnographic accounts of female hunting among hunter-gatherers and horticulturalists in various parts of the world were and have been discovered, rediscovered, and emphasized (see Estioko-Griffin and Griffin 1981:140). There were references to women hunting in such groups as the Australian Aborigines (Goodale 1971:151-158, 168-169; Kaberry 1939:22; Rohrlach-Leavitt et al. 1975:114), the Agta of the Philippines (Estioko-Griffin and Griffin 1981), the New Guinea Vanatinai (Lepowsky 1990:182), the Ojibwa of Canada (Landes 1938:135-137; Leacock 1978), the Eastern Cree of the James Bay region of Canada (Flannery 1935:83), the Mescalero Apache in southeastern Mexico (Flannery 1932:29), the Sioux (Landes 1968:165-166, 191), the Chipewyan of northwestern Saskatchewan (Brumbach and Jarvenpa 1994), the Athapaskans of the Yukon Territory (Cruikshank 1979:9, 26-27; 1990:315-316), the Alaskan Tlingit (Klein 1980:93), the Alaskan Koyukon (Nelson 1983:25), Inuit groups (Briggs 1974:271; Jenness 1991:206; Murdoch 1892:413, cited in Bodenhorn 1990; Nagy 1994:71-72, 73, 75), and in various other cultures (see Estioko-Griffin and Griffin 1981:140). These revelations of women hunting reduced the notion that women were excluded from

hunting from the level of a universality to a generality: in general, men hunted larger game and women snared smaller prey, but important counter cases did exist (Miller 1993:5).

Another notion questioned as a result of early gender research was that of the importance of hunted meat in the diet of hunter-gatherers. Within numerous non-arctic "hunting" societies, it was realized that the contribution of hunted meat to subsistence was less crucial than plant foods (see Lee and DeVore, ed. 1968). In many cases, females in modern hunting-gathering societies usually gathered enough food to support themselves and their families; thus it was argued that the view that females were dependent on males for food was unjustified (Slocum 1975:43).

In addition, the belief that only women were polluters and that males were the ones threatened by this female pollution was discounted by early gender research and numerous ethnographic accounts. For example, data from the Káfe of Papua New Guinea Highlands (Faithorn 1975) indicated that the capacity to endanger others through improper management of powerful substances was shared by men and women. Thus both men and women could be polluters and victims of pollution. Most previous work had tended to focus on women as polluting and the assumed connection between the belief in polluting women and the subordination of women, rather than on the fact that it was the substances out of context that were powerful, polluting, and dangerous if improperly channelled (Faithorn 1975:137-139).

Early gender research also clearly discounted the assumption that male viewpoints were representative of the culture, especially the belief that male dominance and the superiority and importance of the so-called male "public" domain and male activities were notions shared by all members of society. As Rogers (1978) argued (see also Sacks 1979:90-92 for a similar discussion), it was possible for quite different ideologies and perceptions regarding the place, prestige, or value of males and females and their activities in the social order to exist side by side in the same society (see Rogers 1978 and Reiter 1975b:253 for examples). It became apparent that neither male nor female perspectives could be assumed to be identical to those held by the other gender in the society, nor could they be representative of the whole society.

Earlier ethnographers had often portrayed women as political dependents of men, with men in charge of politics and women concerned solely with domestic matters. Because of the apparent lack of "formal" organized political activity by women, many researchers had believed that women were not interested in politics, and simply were not political in nature, being content with what was perceived as their indirect influence on men. However, early gender research revealed that instead of

women being excluded from so called male-dominated politics and prevented from holding power and authority, women, in fact, in some cases did participate in the political decision-making process, had political roles and political groups that had legitimate power, and were entitled to make decisions recognized by men (e.g., Collier 1974; Faithorn 1975:129; Gomm 1979; Klima 1979; Van Allen 1979).

A More Critical Look at Early Gender Research

Despite the valuable contributions revealing that gender relations were much more broad and complex than previously believed, and thus questioning preconceived assumptions about the sexual division of labour and gender relations, early gender research was not immune itself from relying uncritically upon universalities and generalizations. As Moore (1988:191) noted, the "anthropology of women" at one point developed "a discourse about women which had pretensions to universality," trying to include women of other cultures but in the process ending up excluding many. While the aim for these early gender researchers was to challenge men's right to speak for women, in the process they found themselves actually speaking for other women and producing studies and research about women which had been entirely constructed in dialogue with western cultural assumptions (Moore 1988:191). The pretension to universality was evident in their assumptions of universal male dominance (e.g., Cucchiari 1981; Friedl 1975; Kessler 1976; Ortner 1974; Ortner and Whitehead, ed. 1981; Rosaldo 1974, 1980), and of the universality of nature/culture and domestic/public dichotomies (e.g., Kessler 1976; Ortner 1974; Rosaldo 1974), all ultimately based on the underlying belief that "woman" was a universal category.

As Meigs (1990:108) noted, many early anthropologists and other researchers originally had viewed females from a biological deterministic viewpoint, assuming that the status and roles of women were given by nature and that it was a universal biological fact that women were subordinate. For example, in his discussion of male bonding, Tiger (1969) argued that because females were normally pregnant or nursing infants virtually all the time, early hominid cooperative groups involved in hunting would necessarily have been all-male. Thus, according to Tiger, out of man's history as a hunter arose the biological pattern of male bonding, the "spinal column" of the community which was related to male dominance and which ultimately resulted in a widening of the gap between male and female behaviour. Men were hunters, political leaders, and the defenders, their activities more relevant to large scale community integrity because of their strength and their tendency to be more aggressive, violent, and

brave, whereas women were responsible for gathering, maintenance, and child care activities, emphasizing personal interactions and being subordinate to dominant adult males. Not only did Tiger's scheme clearly reflect the model of the domestic/public dichotomy, it also premised the sexual division of labour and differences between men's and women's behaviour as having a biological base, that is, the greater physical strength of men and their desire to preserve the anti-female biological pattern of male bonding (Tiger 1969:100).

Similarly, many early gender researchers, by describing male dominance as universal, seemed also to suggest that female subordination either had resulted directly from human biology or was inherent in human cultures due to constraints of human biology (Lepowsky 1990:171). For example, Kessler (1976:18) stated that the universal relegation of women to secondary status could be seen as the result of cultural adaptations made possible by the nature of women and their biological heritage. As Lepowsky (1990:171) noted, these explanations for female subordination (direct biological constraints or constraints of human biology) implied that it was an unchangeable fact in human social life. A few gender researchers (e.g., Rosaldo and Lamphere 1974:5) were discovering, however, that evidence from primate studies and hormone studies (Hutt 1972; Money and Ehrhardt 1972) indicated that biology constrained but did not necessarily determine the behaviour of the sexes. Moreover, cross-cultural studies such as that conducted by Whyte (1978:167) did not find a pattern of universal male dominance, but rather much variation from culture to culture in virtually all aspects of the position of women relative to men, ranging from general male "dominance" to broad equality, to some types of female "dominance" over men.

In supporting the belief of the universality of male dominance, and hence the assumption that all women were subordinated by men, Lamphere (1974:98) argued that anthropologists should therefore study how women dealt with this male control. Consequently, many early gender researchers tended to portray women as oppressed by men in a male-dominated society. As a result, women were depicted as resorting, out of necessity, to underhanded, manipulative strategies to achieve their own ends (e.g., Anderson 1974). However, this portrayal carried with it negative connotations and implications including the one that women only had access to informal power and influence, and so, had to use devious means to outwit the male-controlled system. As well, by viewing women in this manner, early gender researchers were unable truly to consider societies in which women actually did have control and authority, and were autonomous, if not in all parts of their life, at least in some parts. This narrow view, which essentially prevented the consideration of real power in the lives of women,

perpetuated the belief that women were subordinate to men, and that men and their activities were more valued.

Often related to the assumption of universal domination of men was the belief in the universal cultural devaluation of women, for example, in the form of polluting and dangerous females (e.g., Kessler 1976:28), or in Ortner's (1974) formulation that nature was to culture as female was to male. As mentioned above, however, Faithorn's (1975) analysis of the concept of pollution among the Káfe of New Guinea indicated that both male and female bodily substances could be polluting, and were seen as powerful and not necessarily as unclean or dangerous. As Milton (1979:45) noted, to argue that the Káfe concept of pollution implied the cultural devaluation of women was difficult not only because men, as well as women, were polluting, but also because pollution was not conceptualized in terms of the distinction between men and women. Similarly, in more recent research for the Beng of the Ivory Coast, it was observed that in some contexts women were polluting and in others, they prevented or counteracted pollution (Gottlieb 1990:117). Gottlieb's (1990) work with the Beng, by revealing that concepts of pollution have little to do with female subordination, led to the questioning of the universal belief of the contamination and subordination of women (Sanday 1990a:10).

Ortner's (1974) formulation that universally females were associated with nature and thus devalued provided a powerful analytical framework, and had a wide impact on the discipline in the late 1970s. It was a way of linking sexual ideologies and stereotypes to a wider system of cultural symbols, social roles, and experience (Moore 1988:15). However, as Moore (1988:19) argued, the nature/culture:female/male model assumed a cultural unity that was unjustified. Essentially the model left little, if any, room for the possibility that different groups in society might see and experience things in different ways. "Nature" and "culture" are cultural constructs; consequently, all societies did not or do not necessarily perceive them as distinct and opposed categories in the way that western culture does (see Moore 1988:16-20). Moreover, the concept of the superiority of culture and civilization over nature is most likely a western one as well (Moore 1988:20).

In essence, because of these beliefs in universal male domination and the universal cultural devaluation of women, that is, that everywhere men oppressed women, many early gender researchers appeared to interpret the data in such a way as to support these beliefs, introducing, as Rogers (1978:142) noted, considerable tautology into their arguments. In part, they were perpetuating the very "Man the Hunter" models and scenarios that they had been criticizing and citing as evidence for androcentrism in the discipline. For example, Kessler (1976:14-15) argued that because of childbirth and

infant care, women were bound more closely to the home place, while men had higher mobility and more contact with the outside world. Thus an early and rigid division had developed between the male public sphere, in which men wielded formal authority and power, and the female domestic sphere, in which women had to resort to "devious means" and informal power and influence to safeguard their interests and those of their children (Kessler 1976:17). As well, she implied that women were polluters, dangerous, and thus devalued because of menstruation (Kessler 1976:28), while hunting, which was the most prestigious activity, was most often done by men (Kessler 1976:55). Sanday's (1981) work, another example of this perpetuation of the "Man the Hunter" model, supported the idea that men were the hunters, while women were relegated to the domestic realm (Sanday 1981:77-79). Her model also portrayed women as delegating authority rather than seizing it because they were hindered by child care (Sanday 1981:115). By assuming universal male dominance, many of these researchers were unable to consider the dynamics of interaction and change; that is, since female subordination was considered a natural and inevitable state, explanation was both unnecessary and impossible (Bleier 1984:157).

Processual Archaeology and the Study of Gender

Despite growing gender research and knowledge in anthropology, and in spite of the commitment to recover whole past societies (see Binford 1962), processual archaeologists of the 1970s and 1980s tended to de-culture and de-people the past, and to consider the gender of the actor as unimportant and irrelevant for reconstructing the past (Claassen 1992:2). With an ecological paradigm prevalent in the archaeological studies of hunting-gathering societies (because they were assumed to be most closely controlled by their environment), the focus of archaeologists tended to be turned towards subsistence and settlement, with little emphasis on the nature of society (Duke 1991:280).

Similarly, the systemic and ecosystem approach advocated by Binford, and its focus on broad processes and functional perspectives also contributed to the de-emphasis of the importance of gender (Wylie 1991a:19). Cultural subsystems (e.g., economic, ideological, and political subsystems) were compartmentalized and isolated, and seen as rigid (Maurer 1991:415). The individual actors who procured resources and made decisions became invisible if not irrelevant and subservient to the larger cultural system (Conkey and Spector 1984:22). Material culture was given a passive role, seen as a direct and passive reflection of social organization (Conkey and Spector 1984:23;

Damm 1991:130); thus, processual archaeologists assumed gender differences were directly represented in material evidence (Sørensen 1991:121).

The search for and acceptance of universal laws, the use of conventional economic and systems models (Spencer-Wood 1991:234), and the fact that until very recently archaeology was almost exclusively dominated by scholars who were male (Duke 1991:280) led to the continuing unquestioned acceptance on the part of processual archaeologists of unsupported notions of gender relations. Categories and classifications that reflected modern male-oriented divisions often subsumed women as well as men, depersonalizing them in the name of objective science (Spencer-Wood 1991:238; Yentsch 1991:255). With the de-emphasis of the individual as a social and political actor, humans were represented as faceless and sexless, defined mainly in terms of the space in which they moved or the energy they expended (Graham 1991:470). In essence, many processual archaeologists approached the archaeological data in depersonalized ways, divorced from the realities of individual human behaviour and experience (Graham 1991:470). Gender was perceived as a stable, biological given, and thus was considered irrelevant to the explanatory understanding of cultural dynamics (Wylie 1991a:19).

Research characterized by this processual approach, and perpetuation of unquestioned assumptions about gender relations was and is still commonplace in the discipline. In fact, numerous archaeological, as well as anthropological, studies still simply add women to ethnocentric models of the past (e.g., Hughes 1991), retaining the basic features of the "Man the Hunter" model. Many of the more recent versions of early hominid behaviour that have attempted to integrate females into human evolution have merely superimposed gathering onto the traditional hunting model (Zihlman 1981:104). For example, home base, central place, and food sharing models (e.g., Isaac 1978, 1979; Leakey and Lewin 1978) all are based on the assumption of a strict sexual division of labour and limited female mobility (Conkey and Spector 1984:9), using a biological base for different sex roles and thus minimizing the contribution of women and undermining the behavioural flexibility of both sexes.

Many archaeological studies (e.g., Dobkin de Rios and Hayden 1985:220) tend to begin with the underlying assumption of a rigid sexual division of labour, with hunting allocated universally to males and collecting to females. For example, according to Hayden (1992:35), the sexual division of labour in which males in hunting-gathering groups hunted, made war, and engaged in other exclusively male activities, while women concentrated more on gathering and infant care was supported by a very large body of objective observations. Hayden (1992:35) concluded that there

was little doubt that this patterning of gender behaviour was the expression of a fundamental principle of organization of hunting-gathering societies and more complex traditional societies. Dobkin de Rios and Hayden (1985), however (and no doubt many others) based their conclusions on selective and older ethnographic literature (e.g., the most recent work they cited was Evans-Pritchard 1965); they completely ignored the last 20 years of anthropological studies focusing on gender, and in particular, the roles of women. Moreover, Dobkin de Rios and Hayden (1985) suggested that women were excluded from the hunt because of their sex-linked odours which, unlike male odours, could not be controlled or minimized (Dobkin de Rios and Hayden 1985:220, 223). They appeared to be assuming that all women were either menstruating, gestating, or lactating.

These arguments are clearly reminiscent of biological explanations to account for the position and roles of men and women. In fact, Hayden (1992:39-40) entertained the idea that a biological argument may potentially explain this so-called universal division of labour; that is, female hormones have a positive effect on fine motor skills and an adverse effect on hunting-related spatial tasks (see Hayden 1992:39). These explanations, based as they are on biological stereotyping, tend to present the image that women are weak, cannot make decisions on their own, and are easily controlled by men, with male decisions forced upon them. For example, according to Hayden et al. (1986:458), women in hunting-gathering societies were forced to accept lower status in times of resource stress. Any female opposition to male decisions was futile and dangerous because of male aggressiveness and men's use of force. Is it not possible, however, that women made their own decisions; that they were intelligent enough to recognize when the survival of the group was at risk because of stressed environmental conditions; that they used, as did men, a wide range of strategies to cope with different situations; and that when they did make decisions, it was not necessarily because males, or anyone else for that matter, were forcing them to do so?

Arguments have also been made that occasional hunting by women is impossible to identify in the archaeological record, and would not be significant unless it was a routine type of women's activity (see Hayden 1992:34). This view clearly reflects the emphasis on the importance of and the search for general trends and universalities, and the total disregard for the possibility of variability and flexibility in lifeways and social strategies which might have been important and vital to survival.

Because of this unquestioned belief in this rigid and universal sexual division of labour, it has been suggested that if women have been frequently neglected in prehistory, it has largely been because of the difficulty in distinguishing their activities

from males on the basis of stone tools (e.g., Hayden 1992:42). This belief perpetuates the assumption that women are invisible in the archaeological record, and the impression derived from statements such as Hayden's is that the study of women is unnecessary and pointless.

Numerous archaeological studies have also attempted to deal with and provide explanations for the variability in the status of women between hunting-gathering societies (e.g., Dobkin de Rios and Hayden 1985; Hayden et al. 1986). Based on a sample of 33 hunting-gathering societies, Hayden et al. (1986:458) concluded that women's status was much lower in societies in which resources were stressed, and, to a lesser degree, in which warfare and homicide were high. However, the manner in which they assigned status to women is questionable (see Chapter III for a more detailed discussion of the difficulties in assigning overall status to women or men in a society). First, because they felt that women's status during childbearing years would be most important, they restricted their status characterizations to young and middle-aged women only (Hayden et al. 1986:453). This restriction could potentially result in a very incomplete and possibly biased view. Second, they assigned separate status for women in both the domestic and political realms (Hayden et al. 1986:453). However, are these really analytically separate spheres, or are Hayden et al. (1986) relying upon the western or state-level assumption that political and domestic spheres can be easily distinguished and dichotomized?

Hayden et al. (1986:452, 461; see also Hayden 1992:35) argued that those feminists who had suggested that the constant portrayal of low female status and male dominance in hunting-gathering societies could be best explained as the result of male ethnographers and male bias, a non-historical approach, and ethnocentricity (they cite Friedl 1967; Hochschild 1973; Leacock 1978; Linton 1971; Rosaldo and Lamphere, ed. 1974 as examples) had failed to take into account that anthropologists were trained to be careful observers and to avoid ethnocentric interpretations. However, this argument is contradicted by several statements they made. Hayden et al. (1986:449) noted that in anthropological and popular literature, the portrayal of women's status among hunter-gatherers had tended to vary according to the fashion of the times and according to the political or social bias of particular authors. Moreover, they argued that proponents of these portrayals of women's status among hunter-gatherers in stereotypic terms either consciously or unconsciously had attempted to fit women's roles into political or social ideals that were understandable in terms of the prevailing social climate, or which were useful for supporting or changing the prevailing social climate (Hayden et al.

1986:450). This argument clearly contradicts their claim that anthropologists are trained to be careful observers and to avoid ethnocentric interpretations.

In summary, these kinds of approaches to gender studies, which are often characteristic of processual archaeological work, completely dismiss the recent research that has demonstrated the variety and flexibility of female and male roles and relations. Instead, they tend to support and perpetuate rigid unsupported views of sexual division of labour. Essentially, preconceived assumptions derived from selective ethnographies, a belief in an objective scientific reality that is immune to cultural biases, and a focus on general trends and average behaviours can only result in narrow and static views of prehistoric gender relations.

Gender Studies and Plains Archaeology

A few gender studies have been undertaken in Plains anthropology (e.g., Albers and Medicine 1983; Weist 1980); in general, however, little research explicitly investigating gender systems for Plains prehistory, including those of the Paleoindian period, has been undertaken (for exceptions, see Duke 1991; Guenther 1991; Hughes 1991; Kornfeld 1991; Kornfeld and Francis 1991; O'Brien 1991; Spector 1983; Whelan 1995). As Kornfeld and Francis (1991:444) noted, only five articles in the last 15 years in the journal *Plains Anthropologist* have explicitly addressed issues of gender roles. Instead, ideas of gender are often expressed implicitly in Plains archaeological reconstructions (Kornfeld and Francis 1991:444); that is, they are either unstated and assumed, or not even considered relevant and consequently ignored (see Chapter V for examples and critical discussion of the few gender reconstructions for Plains Paleoindian lifeways). As Wylie (1991b:33-34) noted for archaeology in general (which I believe is equally applicable for Plains archaeology), one explanation for this lack of interest in gender issues is the assumption that gender structures are stable, being based on biological factors, and thus irrelevant to explaining cultural dynamics. Past gender structures are therefore seen as essentially the same as those today. The major factors which I believe to be preventing Plains archaeology and Paleoindian archaeology from dealing more successfully with issues of gender are an emphasis on culture history, a focus on positivist, functional-processual approaches which emphasize the primacy of the environment and group adaptation and also stress the importance of hypotheses-testing, the search for material correlates of gender, the use of static and restraining classifications, categories, and definitions, the belief that gender is static, fixed, and biologically based and thus not very relevant for discussions of cultural

process, and the uncritical and selective dependence upon ethnographic analogy for archaeological interpretations of lifeways (see both Chapters III and V for more detailed discussions relating to these issues).

Feminism and the Study of Gender

Anthropology

Many of the anthropologists who were among the first to deal with gender issues in detail in the 1970s acknowledged that they were in sympathy with the feminist movement and that it had influenced their studies (e.g., Friedl 1975:6; Reiter 1975a:11). As Milton (1979:41) pointed out, for many of these writers, then, their dissatisfaction with how anthropology treated women was coupled with their dissatisfaction with the status of women in western industrial society and a determination to do something about it. For example, Ortner (1974:67) wished to see "genuine change come about, the emergence of a social and cultural order in which as much of the range of human potential is open to women as to men." The passion surrounding the struggle to change the position of women often led many writers to substitute controversial and questionable assumptions for open inquiry (Whyte 1978:3). Milton (1979) illustrated several inconsistencies in the arguments of many early feminist anthropologists, and these and others will be briefly reviewed here.

In the work of early feminist anthropologists, "male bias" in society was often conceptualized in terms of male dominance and was usually not clearly defined (Milton 1979:41). Instead, its existence in all societies was assumed and thus required no proof (e.g., Kessler 1976:12; Ortner 1974:71; Reiter 1975a:11). Moreover, many of these early feminist anthropologists considered that male dominance and women's subordination lay at the level of cultural evaluations (e.g., Kessler 1976; Ortner 1974); so even if women had power over men at the level of social interaction, these powers were considered trivial (e.g., Kessler 1976:17-18) (Milton 1979:42). For example, Rosaldo (1974:20) implied that despite the fact that women could appoint and depose chiefs in Iroquois society, only men could become chiefs, and this situation was an indication of the devaluation of women and their lack of culturally-valued authority. However, as Milton (1979:43) noted, Rosaldo assumed that the Iroquois had valued their chiefs more highly than they had valued the people who had appointed them. Her assumption was likely influenced by the European concept of chief as the highest authority rather than from an actual study of Iroquois values (Milton 1979:43).

Some early feminist anthropologists, such as Ortner and Rosaldo, often used existing ethnographies to support their claim that male dominance was a widespread cultural phenomenon. As Milton (1979:44) pointed out, though, this assertion was inconsistent with their claims that anthropological research had long suffered from male bias, and that male dominance was a notion shared by all members of societies. If existing ethnographies were one-sided, that is, written from a male viewpoint, as many early feminist anthropologists claimed, then it logically followed that whatever was taken from these ethnographies as evidence for existence of male dominance was biased evidence (Milton 1979:45). For example, Weist (1980) criticized Plains ethnographic literature for its apparent male bias and focus on male activities and informants, yet she used those same ethnographic accounts to substantiate her claim that in general, women had been subordinated within a Plains male-dominated society. In some situations, then, these early feminists were guilty of the same bias of which they had accused their colleagues; that is, in using information which they had argued was derived from male ethnographers and informants, and presenting it as the cultural expression of society as a whole, they were effectively ignoring the female point of view (Milton 1979:45). Moreover, many of these early feminist researchers failed to take into account the fact that some ethnographers actually did portray women and children as important, noting that their contributions were recognized as crucial for survival. Instead, they tended to generalize for all anthropologists, that all were androcentric and produced male-biased work.

As previously mentioned, many early feminists tended to perceive the differences between sexes in terms of hierarchy and inequality, that is, that women were consistently regarded as inferior to men. Consequently, male dominance and the oppression of women were seen as objectively existing universal phenomena (e.g., Kessler 1976), and attempts were made to explain them in terms of universal principles (Milton 1979:53). Numerous studies, however, indicated that the notion of male dominance and superiority was far from being a cultural universal. In fact, as Milton (1979:53) indicated, it was frequently contradicted by the actors themselves, male and female alike (e.g., Briggs 1974; Gottlieb 1990; Lederman 1990; Lepowsky 1990; Meigs 1990; Reiter 1975b; Richards 1974; Sanday 1990b; Schlegel 1990). In some cultural contexts and situations, it was clear that women had more power and authority than generally believed (Webster 1975:154). The assumption that people everywhere conceptualized relations between the sexes in hierarchical terms appeared to be unsupported (Sacks 1976:565). All societies did not necessarily share a single universal hierarchical notion of the relative valuation of men and women and their respective

work (see Sacks 1979:89-90), nor did all societies rank economic activities and social relations and life in a way that men and their activities were always valued over women and their activities. The concept of male dominance, as formulated by early feminist anthropologists, was therefore ill-defined, based on empirically unsound assumptions, and as Milton (1979:53) argued, was better considered as an evaluation of the relation between the sexes on the part of feminist anthropologists, that is, more a product of their concern with their position in their own society. For instance, Collier and Rosaldo (1981:318) maintained that, much as in western society, women in hunting-gathering societies were oppressed victims, restricted in freedom by men and marriage. According to them, with marriage, men gained access to female sexuality and products of female labour. Men were therefore free to be effective social actors, having their basic needs looked after. For women, however, marriage resulted in a decline in status and autonomy, and a loss of freedom (Collier and Rosaldo 1981:284). Their work projects what appears to be a strong feminist influence and the impression that they were interpreting the data in such a way as to support their preconceived assumption of the universality of male dominance and the oppression of women.

In more recent feminist anthropological work, remnants of these assumptions and preconceived beliefs held by earlier feminist researchers are apparent. For example, Moore (1988:79, 185) claimed that women should not be regarded as passive losers, but rather as active participants who "struggle" against the situations in which they find themselves, that is, struggle against the demands made on their labour, time, and resources by their husbands and other male kin, and by state oppression. Clearly then, for many feminists, the underlying image of women in both western and non-western societies is one of victims of the state and of men. Thus, while many early feminist anthropologists (e.g., Reiter 1975a:12-13; Rosaldo 1974:17; Rosaldo and Lamphere 1974:15) accused anthropologists of treating women's lives as less important than those of men primarily because of cultural bias, in several cases, they were equally guilty of being influenced by cultural bias, in this case, a strong feminist perspective and the preconceived belief in the universality of male oppression of females.

Archaeology

As previously illustrated with anthropology, in a similar way, a feminist influence is often apparent in the work of some archaeologists. These feminist archaeologists frequently characterize the work of many processual and non-feminist archaeologists as androcentric and ethnocentric, using or interpreting a single or a few

cases in such a way as to support their belief in the androcentric nature of all archaeology. Also, some feminist archaeologists tend to rely upon unquestioned assumptions about gender roles based on selective ethnographic analogies (e.g., Ehrenberg 1989), a process they actually have argued resulted in the many androcentric and ethnocentric archaeological reconstructions of the past. In some cases, these feminist reconstructions emphasizing women and generalizing about the androcentric nature of archaeology are often just as uncritical and questionable as the archaeology they are criticizing.

For example, in Women in Prehistory, Ehrenberg (1989) attempted to examine Paleolithic and Mesolithic societies with a specific emphasis on the role women had played. She argued that modern hunting-gathering societies could provide analogies for these societies. However, her work is characterized by a reliance on a static and questionable view of both modern hunting-gathering societies and the sexual division of labour within those societies. She unquestioningly stated that the fixed division of labour between men and women in these societies (i.e., men as hunters and women as collectors) was related to childbirth and child rearing (Ehrenberg 1989:65-66). Moreover, she argued that because women provided an equal share of the food through the gathered plant food they collected, social equality between women and men was a key feature for these societies (Ehrenberg 1989:61). Basing her interpretation on this uncritical analogy with modern hunter-gatherers and a naive and simple view of egalitarianism and the "original affluent society" (see Sahlins 1972), Ehrenberg concluded that the "life of a Palaeolithic or Mesolithic woman may have been quite pleasant" (Ehrenberg 1989:62), and that because these women gathered the bulk of the diet in plant foods, high status was ensured for them.

As well, possibly as a result of her attempt to rectify both the archaeological emphasis on male activities and roles and the corresponding neglect or misunderstanding of the roles and activities of females, her reconstruction tends to go to the extreme of emphasizing women and ignoring men; that is, she argued that instead of the male being seen as the protector, hunter, aggressor, and provider, females had predominantly inspired all crucial steps in human development (Ehrenberg 1989:50), including the invention of containers and early tools, and the invention of agricultural techniques and pottery. These types of reconstructions, which all but exclude males or give them passive roles, and, in this particular case, rely upon uncritical comparisons between present-day hunting-gathering societies and those that lived close to two million years ago, are in essence not much better than those archaeological reconstructions that revolve solely around male activities and roles.

Another example of recent feminist archaeological work is that of Mitchell (1992), which focused more on a deconstruction and exposure of "male bias" than on a reconstruction of prehistory that included and emphasized women, as with Ehrenberg's work. Mitchell (1992) used a feminist perspective to criticize Deetz's (1965) study of Arikara ceramics. In brief, Deetz's (1965) aim was to demonstrate that the changing social organization of the Arikara away from a matrilineal residence pattern during the eighteenth century was reflected in ceramics, more specifically, in greater stylistic variation in their ceramics.

Mitchell (1992) pointed out some valid criticisms of Deetz's work, including his assumptions that only women had made pottery, that pottery production had been connected to domestic units, that there had been a strict division of labour with only men trading, and that men's involvement in trade unquestioningly had resulted in decreased female status and increased male stature. Mitchell's claim, however, that Deetz had given considerable attention to the trade of men and the male possession of women, portraying men as active and playing vital economic roles, while ignoring the activities of women and portraying them as passive and non-influential in social and economic spheres (see Mitchell 1992:90, 91), should be considered less valid, and a more subjective interpretation.

In fact, women and their activities were mentioned by Deetz. They were portrayed as active in that mothers instructed their daughters in the art of pottery manufacture (Deetz 1965:97). Moreover, Deetz (1965:29) noted that women were chief participants in house construction, and were owners, tenders, and harvesters of the gardens. Although Deetz may have overemphasized the importance of male trade and male accumulation of wealth to some degree, a closer examination of Deetz (1965:36-37) reveals that men, as well as women, were also portrayed passively, controlled by larger forces of change such as radical changes in their way of life due to ecological readjustments, European expansion, disease, and population decline.

The portrayal of Arikara society by Deetz was primarily a result of his dependence upon ethnographic accounts exhibiting ethnocentric bias, his reliance on a static view of gender and on rigid and unquestioned notions about the sexual division of labour, his strongly typological and systemic point of view which saw passive individuals acting as groups, and his way of relating change in the material record to change in behaviour or non-material aspects of culture (i.e., the belief that material goods passively reflect behaviour). At the time of his study, he considered Arikara involvement in trade one of the major factors in bringing about social change, and this view explains why he emphasized trade. I believe that this emphasis was not an

intentional, deliberate attempt to activate men and diminish the role of women, but rather the result of the passive role given to gender and the denial of active and direct participation on the part of individuals, both men and women. Although Mitchell (1992:91) noted that many of the androcentric assumptions in Deetz's study had been a result of androcentric bias found in the primary sources, she claimed that this situation did not exonerate Deetz since he had chosen to accept these sources as objective and valid, and had chosen to cite selectively the segments of the sources that supported his assumptions regarding the roles and activities of women and men while ignoring other potentially important information. To some degree, Mitchell (1992) was guilty of the same fault, choosing to cite selective portions that would support her claim for the androcentric nature of Deetz's work.

As illustrated by the two examples discussed above, the work of feminist archaeologists, as the work of any other archaeologist or researcher, can at times be characterized by the tendency to choose data selectively or uncritically interpret it in such a way as to support preconceived assumptions and models about women in prehistory and about how previous archaeologists have "androcentrically" dealt with gender. But there is much diversity amongst archaeologists, whether influenced by feminist approaches, processual perspectives, or post-processual trends; therefore, I realize that not all feminist archaeologists (or for that matter, all processual archaeologists or post-processualists) are guilty of the same mistakes, nor can they be characterized as having the same beliefs and views, and as using the same approaches and perspectives. In several cases, feminist archaeological studies have been rigorous and critical, and have provided insight and inspiration with regard to interpretations of the past.

Despite this diversity within feminist archaeology, not only Mitchell (1992), but numerous other feminist archaeologists as well (e.g., Bolen 1992; Conkey and Spector 1984; Eisner 1991) have claimed that much of the archaeological work done in the past and present, specifically that of processual archaeologists, is androcentric. But can processual archaeology be both androcentric and de-peopled at the same time, as many have claimed (e.g., Claassen 1992:2)? I believe that both "androcentrism" and "male bias" are inappropriate terms that have outlived their usefulness, not only because they both have pejorative connotations and imply deliberate and intentional neglect and distortion of women in prehistory, but also because it is not only men who can rely upon unquestioned and so-called "androcentric" assumptions about gender. All archaeologists are susceptible to relying upon uncritical assumptions, whether influenced by preconceived ideas and models, prevailing viewpoints, assumptions based

on western or state-level societal beliefs, or political agendas. Both "male bias" and "androcentrism" are loaded, political terms that carry the implications that certain traits and patterns of thinking are associated with biological sex; moreover, they connote that women have a clearer, more privileged view than men. As Wylie (1993b:10) suggested, an emphasis in the archaeological literature on hunting assemblages and on stereotypes about gender relations that disregard flexibility in gender systems most often does not involve an intentional or a deliberate attempt to devalue women and their activities and legitimize gender inequity. It more likely reflects a narrowing, uncritical perspective or, as Wylie (1993b:11) termed it, an unreflective, male-centred perspective; that is, until recently both archaeology and anthropology have been male-dominated fields focusing on male informants and kill sites, and relying upon western or state-level common notions and assumptions.

Sociopolitical Analysis

Introduction

It is apparent that many of a researcher's attitudes about male and female roles and gender relations in other cultures and in prehistory are influenced by modern culture and his or her cultural experience and education (Bruhns 1991:421; Eisner 1991:352; Etienne and Leacock 1980:4; Zihlman 1981:76). This situation is particularly apparent with regard to reconstructions of gender roles for early hominids, beginning with some of the earliest interpretations (see Lewin 1987 for a detailed account of the influence of social climate upon interpretations of early hominid lifeways). For example, as previously mentioned, Darwin's approach included the themes of male dominance, male choice in sexual selection, the use of tools as weapons, and female passivity. Given the values of Victorian England and available evidence, these central themes are not surprising (Zihlman 1981:76-77). Some of the more recent reconstructions of gender roles of early hominids have appeared to be reminiscent of twentieth-century western industrial capitalism, with the portrayal of man as the provider, protector, and controller of the female and the nuclear family (Whelan 1991:358; Zihlman 1981:96, 1991b:64). This portrayal tends to perpetuate the belief that a rigid sexual division of labour, a pair bond mating system, and some form of gender inequality have been parts of the human adaptation throughout prehistory and history, and, hence, were due to inherent biological differences between the sexes (Whelan 1991:358; Zihlman 1981:76, 1991b:64, 1993:32).

Victorian Influences

Much of the way eighteenth- and nineteenth-century archaeologists and anthropologists had reconstructed, not only early hominid lifeways, but also prehistoric lifeways, and the way they had assessed the status and value of non-western peoples, their labour, and societies, was greatly influenced by Victorian values. As Kehoe (1983:57) noted, Victorians had been taught that both science and religion agreed on the natural inferiority and subordination of women to men. With the industrial revolution, increasing competition for jobs, and the development of a middle class during the nineteenth century, many women had lost their productive activities and roles, and had become more dependent upon men (Weist 1983:38). The Industrial Revolution and rise of capitalism had divorced households from places of employment, forcing women to choose between compensated employment and motherhood (Kehoe 1983:56). The Victorian notion arose of the ideal woman (i.e., frail, pure, nurturing, passive, leisured, and ornamental to her husband), and led to the view that women in other societies who were physically strong, independent, aggressive, and hard working were innately inferior to the Victorian lady (Kehoe 1983:56). Those societies were consequently considered primitive and little evolved (Kehoe 1983:56).

Not surprisingly, North American Indian women were interpreted by some travellers, missionaries, and fur traders as beasts of burden and slaves, occupying a lowly and inferior place in their society, primarily because they were seen as leading a life of unending tedious labour, being denigrated by the work they were "forced" to perform, being bought and sold as pawns in male economic transactions, subjected to polygyny, and having no apparent control over their sexuality (Abel 1993:22; Leacock 1980:27; Weist 1980:256, 1983:31-36). For example, Hoebel (1940:119), in a reconstruction of Comanche equestrian life of 1870, wrote that women, horses, and dogs were classed as private property, with women being treated essentially as chattel. However, as Abel (1993:22) questioned, did this image reflect reality or simply European value judgments? Specifically for the Blackfoot, Conaty (1995) claimed that historical documents of the traders and explorers were biased because the writers were perceiving the Blackfoot through their own male European world view, and thus excluded Blackfoot women and failed to acknowledge women's actual status, rights, and economic contributions in Blackfoot society.

Although the late eighteenth-century explorer Samuel Hearne portrayed the society of Northern Chipewyan Indians as male-dominated, in which women had to

obey their husbands (Hearne 1971:90, 310) and were considered property for which men wrestled (Hearne 1971:104), having lives that were "one continued scene of drudgery" (Hearne 1971:336), Hearne did make indirect and direct references to the importance and value of the economic contributions of women. For example, Hearne (1971:12) referred to the fact that Moses Norton, the Governor of Prince of Wales's Fort, had ordered him not to take any women on his second attempt to journey to the arctic shore to search for copper mines, even though Norton knew that Hearne could not do without the women's assistance. In fact, Hearne's Indian guide, Matonabee, informed him that it was impossible to travel for any length of time in their country without the help of women, especially in making clothing, setting up tents, and carrying loads (Hearne 1971:55). Matonabee even prided himself on the height and strength of his wives and their ability to haul heavy loads, an ability that was considered very attractive and valuable in women in their society (Hearne 1971:88-90). As Brown (1990:64-66) noted, some records from the late 1700s emphasized the importance of the contributions of Indian women at the early fur trade posts and in the journeys of early explorers, even implying that many early explorers and traders were actually dependent to some degree on native women. Similarly, Schweger's (1983) study illustrated that many early whalers and explorers in the Arctic depended upon natives, and particularly women, to make and repair their clothing. Most likely, as Smedley (1974:220) claimed specifically for the Birom of Nigeria, those writers who had depicted women solely as little more than beasts of burden, subordinated by dominant males, did not fully understand the nature and processes of the daily life of native peoples. This denigration of North American native women was made easy primarily due to the paradigm of classical anthropology, which subscribed to a patriarchal dogma of the universal subjection of the weaker sex, and which emphasized classification and consequently, a dichotomy between "civilized" and "primitive" (Kehoe 1983:70).

As well, the pervasive influence of nineteenth-century social theory which advocated a rigid division of social life into domestic and public spheres had been and still is extremely influential in anthropological and archaeological interpretations. This Victorian model of social life separated the domestic from the public sphere, with the belief that the home was a refuge and nurturant haven entirely separate from the public world of business and politics. While women's domain was the domestic sphere and the home, men governed society and the political realm. Women were considered dependent upon men, and different rights were given to those in these separate spheres (Moore 1988:22). Wall (1994) provided a detailed account of this separation of male and female spheres in late eighteenth- and early nineteenth-century New York City,

including an in-depth examination of how men and women had actively contributed to the development of this separation. The influence of this domestic/public dichotomy can clearly be seen in the early "Man the Hunter" model, in early feminists' reconstructions (e.g., Kessler 1976; Sanday 1981), and in many other archaeological reconstructions that have portrayed men as the active members of society, being the hunters of animals, the providers, the protectors, in charge of political and trade activities, while women were seen in more passive roles as mothers, wives, gatherers of plants, cooks, tenders of the home, and performers of domestic activities.

State-Level Models

In a way similar to nineteenth-century anthropology and archaeology, present day archaeologists and anthropologists are not immune from cultural and social influences. Since archaeology has lacked an explicit framework for conceptualizing and researching gender, there has been a tendency for archaeologists to draw upon a framework that is implicit and rooted in their own contemporary experience (Conkey and Spector 1984:1-2). In other words, "researchers bring to their work preconceived notions about what each sex ought to do, and these notions serve to structure the way artifacts are interpreted" (Conkey and Spector 1984:10).

Thus, many archaeologists have unconsciously constructed a past in the image of modern models and preconceived assumptions. For example, in western and state-level societies, because childbearing and child care are often seen as a hindrance to female participation within wider society (Bolen 1992:49), researchers tend to project similar notions onto prehistoric constructs (Bolen 1992:49) or onto other cultures, assuming low status for motherhood everywhere and every place (Dahlberg 1981:21). Related to this view is the assumption that males choose female mates and have control over them and their offspring; this bias also holds that long-term monogamy was an early human development and is a normal characteristic of all human groups (Slocum 1975:44). The ideal modern pattern of one male supporting a dependent wife and children has clearly filtered through to some anthropological and archaeological interpretations.

In addition, modern western analytical and scientific tradition has preserved the nineteenth-century Victorian division of separate male and female spheres (Rosaldo 1980:407). Consequently, many archaeologists have implicitly assumed that the division of the world into domestic/private/female sphere and the public/outside/male sphere can be applied to prehistory. Even the "Woman the Gatherer" model proposed

in response to the "Man the Hunter" model perpetuated sexually stereotyped spheres, based on Victorian dichotomies and biological terms, reinforcing the view that women's economic roles were limited, and the primary female focus was motherhood and domestic concerns (Morgan 1985:163; Rosaldo 1980:410). But this concept both constructs the past in the image of the present, and, in addition, projects the current low status given to domestic work onto the past (Maurer 1991:416; Spencer-Wood 1991:237).

As well, the assumption that male dominance is universal (e.g., Cucchiari 1981:33; Friedl 1975:7; Kessler 1976; Ortner 1974:67-71; Ortner and Whitehead, ed. 1981; Rosaldo 1974:17, 21; 1980:393-394), which itself is probably related to assumptions and views equating dominance with public leadership (Leacock 1978; Sacks 1976; Sanday 1981:113), may distort how anthropologists and archaeologists interpret gender relations in other groups and in the past. The beliefs that women were and are nonpolitical, or that male and female authority is unequal rather than different, with so-called "formal" authority of men more valued than so-called "informal" authority of women in pre-state societies and in the prehistoric past, are essentially the result of state bias (Sacks 1976; Tiffany 1979:13). This state bias assumes that women participate in politics only indirectly through husbands, have little formal influence and power, rarely hold positions of legitimate authority, and instead have access primarily to informal and indirect control as complainers and gossips (e.g., Collier 1974; Matthiasson 1974:423; Weist 1980:261-262). However, it is questionable whether terms such as "formal" can even be applied to authority and rights exercised by males in non-state societies. As Wylie (1992b:56-57) argued, women tend to appear to fit the stereotypes of powerless, passive, and manipulative persons when considered in terms of western and state-level masculine concepts of power. Clearly, a reevaluation of western-defined political terms such as formal and informal, legitimate authority, and direct and indirect control is needed, especially in cases where these terms are applied to groups such as hunter-gatherers. It is highly unlikely that "formal" and "informal" power and influence had or have the same significance and value for other societies as for state-level societies (see Rogers 1978 for a more detailed discussion; and also Wylie 1992b, who has provided an excellent and detailed discussion and evaluation of the ideas of social power and authority, formal and informal power, and the frequent confusion of these concepts).

Two genders, male and female, are commonly identified in western culture, but this classification does not necessarily indicate that archaeologists automatically know what it meant to be a woman or a man in a certain prehistoric culture. These past

groups may or may not have created or defined cultural categories that are comparable to modern western ones (Bolen 1991:401-402). Thus, one can question the validity of a male and female division for prehistoric hunter-gatherers: was the male and female dichotomy important in shaping their social roles? By looking at the data from the perspective of a male-female dichotomy, are other underlying relationships, which may be more important in understanding culture, hidden (Eisner 1991:356)? Division of labour based on sex is only one possible form of labour organization, and it can be simultaneously influenced by variables such as age and class (Hollimon 1991:462).

As well, the signs that many anthropologists and archaeologists interpret as typically indicative of male dominance and female denigration (i.e., female pollution, exclusion from religion and politics, female infanticide) may in fact have been interpreted ethnocentrically; that is, they may be more applicable to modern western or state-level society. Alternatively, the signs simply may be inaccurately viewed and not necessarily valid for past societies. For example, Harris (1993:59) argued that the belief that menstruating women were polluting, and the exclusion of women from men's secret rites, politics, and decision-making, were all indicators that gender roles were not balanced in hunting-gathering societies. However, it is possible that past groups had no concept or a very different view of dominance and subordination, concentrating on the differences between males and females in a complementary and "different-yet-equal" aspect rather than from a dominant-subordinate perspective. State bias is often evident in the fact that differences and asymmetry tend to be interpreted by anthropologists as inequality and hierarchy (Leacock 1978; Moore 1988:2; Sacks 1976); however, the presence of differences in frequencies of behaviours between men and women does not necessarily imply a gender hierarchy (Zihlman 1993:39). The fact that in some societies men and women make different contributions to society and have different spheres of interest, control, and activity, does not automatically indicate a higher status for one sex over the other. Difference need not be simply equated with inferiority and superiority, or dominance and subordination.

Because archaeologists, anthropologists, and other academic researchers come from an extremely hierarchical cultural milieu, accentuated by a class stratified society, there is a tendency to view other cultures through this mind-set (Bleier 1984:139), constructing categories, setting up oppositions and dichotomies to contain social differences, and then hierarchically ranking them in terms of power (Reiter 1975a:15), essentially assuming that social relations must always be hierarchically structured (Etienne and Leacock 1980:10). Dominance hierarchies, stratification, power, and control are not necessarily inherent in nature or present in all societies in the same ways

and forms as in state societies; therefore, projecting this conceptual framework onto non-state and prehistoric societies is simply inappropriate (Bleier 1984:139).

Summary

As Trigger (1984:292, quoted in Nelson 1993:311) reminded us, "archaeological interpretations are subtly influenced by social and personal preconceptions of reality that preclude an awareness of alternative explanations which might encourage formal testing or of the actual limits within which a generalization holds true." In essence, too often a researcher's assumptions, values, beliefs, and models derived from modern western or state-level culture, from his or her own cultural milieu and experiences, are unquestioningly applied to and used to evaluate male-female behaviour in non-state societies and the prehistoric past. This view can result and has frequently resulted in misinterpretations and distortions of male and female roles and relations. For example, in Malinowski's (1913) study of Australian Aborigines, without any fieldwork he unquestioningly accepted the idea that women were slaves and the property of husbands. As Berndt (1981:173) noted, his own interpretations and opinions were very much a product of his time, his sociopolitical background, and his personal perspectives. As well, the anthropological fieldwork by Malinowski in the Trobriand Islands is considered a classic; yet in his studies women were essentially invisible, disregarded as economically, ritually, and symbolically significant, this neglect consequently producing an incomplete and distorted picture of male and female relationships (Tiffany 1979:22-23). As Briggs (1974:262) argued for Eskimo culture, the same behaviour in two cultures may be differently rationalized and may form parts of different behavioural complexes, and thus have different meanings and values in each culture.

It is obvious that anthropologists and archaeologists cannot deny the great influence that social climate, political views, personal experiences, and knowledge of the time have had upon their reconstructions and interpretations. A few examples effectively illustrate this influence on anthropological and archaeological research. Numerous ethnographic studies of Australia portray women in a positive way, whereas others portray women in a more negative fashion. For example, the claim by Montagu (1937:23) that Australian aboriginal women were not unlike "domesticated cows" aligned with both Malinowski's (1913:278) belief that women were slaves to their husbands and forced to do the heavier work (Rohrlich-Leavitt et al. 1975:114), and with Hart and Pilling's (1960:14, 19) reference to older Australian women as ancient or

toothless hags and crones, and their portrayal of women as commodities in the male-controlled game of marriage. However, the research done by Kaberry (1939), Goodale (1971), and Berndt (1981) presented a totally different picture of aboriginal women, contradicting earlier images of women being controlled by men, equated with the unclean, and excluded from ritual life (see also Gale 1986). The importance of the economic contribution of women had been in fact recognized by Australian societies (Berndt 1981:192-193; Rohrlach-Leavitt et al. 1975:123); women were basically economically independent of men (Berndt 1981:192-193, 1986:70); they hunted kangaroo and small game (Berndt 1981:164; Hamilton 1980:11; Rohrlach-Leavitt et al. 1975:114); and they had their own rituals and ceremonies, closely related to those of men with the same beliefs and totemic ancestors (Kaberry 1939). A similar case is evident for Inuit societies. Because of the presence of female infanticide, menstrual taboos, and sexual practices (for a classic example, see Friedl 1975:45 who argued for a stark picture of Eskimo male dominance and female submissiveness), common traditional interpretations had viewed Eskimo women as devalued, inferior to, and dominated by men. Other studies, however, such as that of Briggs (1974:287-288), clearly provided evidence that Eskimo men did not consciously derogate women, but rather perceived women and their skills as indispensable to survival as men.

In some situations, the contradictory portrayal of the status and positions of women and men within a society are provided by the same author in the same written work. For example, Leacock (1992:230) illustrated how, on one hand, Landes (1938) had portrayed Ojibwa women as independent, more versatile than men, accustomed to supporting themselves by hunting, and recognized publicly as midwives and herbal doctors; these roles gained them prestige for fine work, and the men often bragged about their wives' work. On the other hand, Landes argued that Ojibwa women were inferior, simply onlookers and admirers of men, with their work totally ignored and their talk considered only gossip. Another example of a single work containing apparent contradictions about the position and status of women is Weist's (1980) discussion of North American Plains Indian women. She argued that, overall, women had been essentially subordinated in a male-dominated Plains society, gaining prestige only from male relatives (Weist 1980:261), lacking freedom to control access to their own bodies (Weist 1980:258), and being peripheral to politics (Weist 1980:259). Yet she noted that women had received praise for female pursuits (Weist 1980:262), had the option to strive for male goals if they so desired (Weist 1980:263), which is suggestive of some freedom of choice, and attended and spoke in councils. The implication derived from these accounts clearly suggests that attempting to label women or men in a

specific society as being dominant or having high status or low status is extremely difficult (see discussion in Chapter III). Contradictions such as these concerning the position of women in certain societies may be partly due to the fact that researchers are defining status according to diverse criteria (Giovannini 1992:243), and are influenced by current western or state-level values regarding status. On the other hand, these differences actually may be reflecting real contradictions pertaining to women's position in those societies that have always been there, or may reflect the result of European contact and changing value systems.

These examples suggest the precariousness and problems associated with relying completely and uncritically upon single ethnographic accounts, whether earlier or more recent, for assumptions and ideas in building theoretical frameworks and archaeological models that reconstruct lifeways and gender relations (e.g., Hayden's reliance upon ethnographic accounts for determining status of women in hunting-gathering societies). If the status and roles of either women or men are distorted due to preconceived unquestioned assumptions and definitions, essentially the total social system is inaccurately portrayed, since the relationships of women and men are interlocked. Much of the problem can be traced to the typical western ahistorical approach to gender which sees sexual differences, sex roles, and relations as remaining identical and rigid across all contexts and cultures (Sanday 1990a:8), and throughout time, reduced to biological factors. The result is a reconstruction of a static past, and the assumption that the present is an intact remnant of this unchanged past (Etienne and Leacock 1980:5). It is therefore obvious that, as much as it is limited by the fragmentary nature of the data, archaeological knowledge of the past is limited as well by epistemologies (Wylie 1981), by methods for analyzing the archaeological record, and by ethnocentric assumptions, research questions, preconceived models and definitions, and categories of analysis (Conkey and Spector 1984:21; Spencer-Wood 1991:235).

CHAPTER III

ARCHAEOLOGY AND THE STUDY OF GENDER

THE QUESTION OF STUDYING GENDER IN ARCHAEOLOGY

Given the nature of archaeological data, is it possible to study gender archaeologically? Moreover, is the examination of gender relevant, necessary, or even important for archaeological research? Numerous anthropological studies emphasizing gender (e.g., Albers and Medicine 1983; Dahlberg, ed. 1981; Friedl 1975; Matthiasson, ed. 1974; Miller, ed. 1993; Ortner and Whitehead, ed. 1981; Reiter, ed. 1975; Rosaldo and Lamphere, ed. 1974; Sanday 1981; Sanday and Goodenough 1990; Tiffany, ed. 1979) have clearly demonstrated the enormous diversity of gender systems. If gender systems are derived from the human biological structure, this enormous variability would likely not exist (Sanday 1981:15-16). Consequently, gender and gender relations can no longer be considered simply to reflect or elaborate upon biologically-based differences between women and men (Bleier 1984; Conkey and Gero 1991:8; Ortner and Whitehead 1981:1; Sanday 1981:15-16); rather, they are more correctly seen as primarily products of social and cultural processes (Bleier 1984; Conkey and Gero 1991:8; Ortner and Whitehead 1981:1; Rosaldo 1980:393; Sanday 1981:15-16). In essence, gender is a fundamental cultural construct that structures the social life and behaviour of all members of society including men, women, and children, permeating almost every aspect of human culture from language to labour processes and social roles (Rosaldo 1980:390; Sassaman 1992:76; J. C. Smith 1991:85; Spencer-Wood 1991:234).

Thus, far from being fixed, universal, and irrelevant, gender is actually a socially constructed, historical and dynamic process, constructed as a set of relationships and embedded in cultural experiences, ideologies, and material social institutions (Conkey 1991:26; Conkey and Gero 1991:9). In other words, gender systems can and should be expected to be highly variable from one culture to another over time and space (Schlegel 1990:23); searching for cross-cultural generalizations and universal models of men's and women's experience can no longer be justified. Therefore, having established the importance and variability of gender, and given that the "organization of gender behavior relates to and is intimately a part of most other aspects of past cultural systems

in which archaeologists have always been interested" (Conkey and Spector 1984:28), how then do archaeologists go about studying gender; moreover, can it be studied at all?

METHODS FOR STUDYING GENDER ARCHAEOLOGICALLY

Questioning Stereotypes and Static Typologies

The reliance upon stereotypes, universalities, and the like can only be restrictive and limiting in the way archaeologists choose their data, examine them, and interpret them. Potentially they distort and obscure variation and a more realistic picture of gender relations. Consequently, the preliminary step in examining gender archaeologically is to be critical of and question the common notions about gender and static typologies that tend to influence how gender issues and relations are viewed.

Critique of the Assumption of the Universality of the Categories of Woman and Mother

Early feminist anthropologists assumed the universality of the category "woman" by believing in the privileged relationship between female ethnographer and female informant (e.g., Kessler 1976:143), and by presuming the universal domination of men and subordination of women (Moore 1988). However, with growing research focusing specifically upon gender issues and women, it was soon realized that both the categories of man and woman were dependent upon context, were products of social relations, and were culturally and historically specific. In other words, there were and are fundamental differences among and between women and men based on age, the context of the situation, marital and kinship status, class, race, culture, and historical context.

For example, Briggs (1974:261) noted that it was impossible to generalize about the quality of a "typical" Eskimo woman's life; rather, there existed a great variety of women's lives. Similarly, in a discussion of ranking, societies, and chieftainship of the Plains Cree, Mandelbaum (1990) demonstrated the inaccuracy in assuming that all Cree men had high status and in viewing them as a single category. Instead, among the Cree, men had multiple and variable status and roles within the band and throughout their life cycles. In addition, Moogk (1991:106) noted that a Nuu-chah-nulth woman from the Northwest Coast could be initiated in the Wolf ritual and thus take on a man's status. Clearly, these examples suggest that within a society, and no doubt between societies, the categories, meaning, and lives of "woman" and "man" are far from

identical and universal; what it is to be a woman and what it is to be a man are culturally, contextually, and historically variable. As Moore (1988:7) maintained, biological differences do not provide a universal basis for social definitions. There is, in fact, no universality in "woman" and "womanness" (Strathern 1981:682), or, for that matter, in the category "man," even though in their models and interpretations, some archaeologists tend to treat them as homogeneous categories.

In many cases, the category "woman" is closely associated with that of "mother," and ideas about the concept of "motherhood," as well as "fatherhood" and "family" retain tremendous influence from Victorian ideals and social theory revolving around the separation of the domestic and public sphere (Moore 1988:22). For example, Malinowski's (1913) influential view of the family as a universal, bounded social unit which fulfilled the need for care and nurturance of children tended to support the view that mothers and mother-child units had a universal function, and that domestic units everywhere had the same form and function because of biological reproduction and child maintenance (Moore 1988:24). Consequently, the general attitude developed that motherhood was biologically based and constraining; thus the sexual division of labour was natural, with women being tied and bound to children and the "home" (see discussion in Bolen 1992:51-52). This view was even perpetuated by early feminist anthropologists. For example, Kessler (1976:14-15) claimed that birth, pregnancy, and infant care had operated to bind women close to a home place and thus the domestic sphere. Moreover, she argued that this division of labour into a female private domain and male public domain had become a human universal at an early stage in human evolution. Brown (1979a:39-40) similarly argued that women were limited by childbirth in that their subsistence activities and tasks had to be compatible with child care, and therefore needed to be repetitive, monotonous, requiring little concentration, performed near the home base, not dangerous, and easily interrupted and resumed.

This notion is still commonplace in more recent anthropological literature. For example, Jochim (1988), in his examination of optimal foraging and the sexual division of labour, assumed that women were restricted by, and therefore, had to select subsistence tasks compatible with child care. Similarly, Cliquet (1984:121) cited as one factor leading to male dominance "Women's heavier burden in reproduction, an activity which, until recently, absorbed most of their energy during their fecund life and which considerably restricted their ability to participate in social and cultural activities." The implications are clear, that reproduction and raising children almost completely prevent

women from doing anything else, that raising children is not a social or cultural activity, and that it is done in isolation from the rest of the society and culture.

Others have claimed, however, that child care has not prevented women in many societies from performing an enormous range of productive tasks and economic activities (see discussion in Sacks 1979:67-68; see also Peacock's 1991 examination of women's work among the Efe, which challenged some of the assumptions made by Brown with regard to men always performing strength jobs and women always performing activities supposedly "compatible" with child care). In fact, it has been suggested that in many societies women have placed their work first and then adjusted spacing and rearing of children to suit their work needs (see Dahlberg 1981:21 for references; Friedl 1975:8, 137). There is ample evidence to indicate that women in many societies worldwide successfully have combined motherhood with the exercise of political power and authority and with the performance of significant productive and trading tasks (Sacks 1979). This evidence suggests that the activities and mobility of many women were and are not necessarily constricted to a great degree by motherhood and child care (see Rogers 1978:135-137 for further references and examples). Based on Murdock's (1937) chart of sexual division of labour for 224 societies, Sacks (1979:67-68) argued that it was apparent that women did and had performed a wide range of productive tasks and economic activities, and that men's work and women's work were defined differently among societies. These findings suggested that assignment of tasks to one or the other sex was not necessarily done on the basis of any biological or psychological attributes of men and women. Sacks (1979:93) even went so far as to suggest that men's tasks were largely determined by what women did not do.

There are widespread references to women being active as mothers while performing a wide variety of other roles. There are references to women riding horseback with their babies strapped to their backs, and not hesitating to stop and catch horses from a wild herd (e.g., Limbaugh 1973:8); taking young children with them wherever they went, whether to temple ceremonies or to the rice fields (e.g., Ebihara 1974:307); and carrying their babies while they were performing daily tasks and collecting activities (e.g., Buenaventura-Posso and Brown 1980:124; Lee 1992:38; McClintock 1992:467), and even when swimming (e.g., Maranda 1974:189). While generally it has been assumed that Athapaskan women's work was primarily associated with camp life and children, there are references to women hunting and snaring not only small game such as muskrat, beaver, gopher, rabbit, grouse, and porcupine (Cruikshank 1979:9), but also larger game such as caribou (Cruikshank 1979:26-27), and even taking their babies with them on hunting trips into the bush (Cruikshank 1990:315-316).

As well, among the Mbuti Pygmies of the Ituri Forest in central Africa (see Turnbull 1981), childbearing did not hinder the full participation of women in various activities. For example, three days after childbirth, women returned to daily hunts. Similarly, for the Blackfoot, Grinnell (1962:197-198) noted that, in some cases, women had resumed work a day after childbirth, and in one particular situation while the group was travelling, a woman had halted, given birth, and caught up with the camp, all within four hours.

Brown's (1979a) assumption that women were limited by child care failed to take into account that in many societies, child care was often, to some degree, collective. Ethnographic accounts of hunter-gatherers have demonstrated that there were and are numerous alternatives to the biological mother as the primary care giver, one of them being older children and other adults who often took charge of younger children and infants (Bolen 1992:54). For example, both men and women amongst the !Kung would range out from camp in the course of their subsistence work; thus both were equally absent from the dwelling place (Draper 1975:86). However, the rhythm of adult work made the role of child nurse unnecessary in !Kung culture because adult groups tended to alternate so at least one third of adults would always remain in camp (Draper 1975:90). Mbuti children, in essence, were considered to have a plurality of mothers, both male and female (Turnbull 1981:214). Furthermore, ethnographic accounts have also indicated that not all women in society are under the so-called "physiological confinements" of eternal mothering; that is, not all women constantly or ever produce children (Bolen 1992:52).

Moreover, all cultures do not necessarily associate "mother" and "woman," and do not define women as nurturers and producers of life with a close relationship to the home or domestic sphere, as is the situation in many western and state-level societies (Collier and Rosaldo 1981:275; Moore 1988:25). For example, Collier and Rosaldo (1981:302-311) illustrated that the !Kung San, the Murngin of Australia, and the Ilongot of the Philippines did not view the concept of "woman" in terms of fertility, maternity, nurturance, and biological reproduction. In fact, in many societies, the processes of birth and pregnancy are the concerns of the whole society, not just women or the domestic domain, and the concept of "mother" may not be necessarily associated with maternal love, daily child care, or physical proximity (Moore 1988:26, 28).

Thus the concept of motherhood as constraining the activities and mobility of women, and the model of indulgence and constant feeding and caring of children by a biological mother do not necessarily hold true for other cultures; consequently, they may not be applicable for prehistory (Bolen 1992:54). Cross-cultural studies have

clearly demonstrated that the institution of motherhood entails more than strict biological reproduction (Bolen 1992:51). The concept of mother, like that of "woman" and "man," is not merely given in natural processes but is also a cultural construction which different societies build up, define, and elaborate in different ways (Moore 1988:25).

Since it has been illustrated that "woman" and "man" and "mother" are culturally and situationally defined, then there exists no analytical meaning in concepts such as "universal male dominance and subordination of woman" (Moore 1988:7). In many anthropological studies, researchers have a tendency to focus exclusively upon evidence supposedly suggesting female subordination, automatically assuming that all males are dominant, oppressing and controlling women until menopause, at which time women may possibly gain more control over their lives (e.g., Kerns and Brown 1992; Weist 1980:259). However, closer examination of numerous ethnographic accounts suggests that in some societies, younger men as well as young women were, at times, subordinated, oppressed, restricted, and controlled to some degree, whether by other people, lineages, groups, or traditions within the society. For example, Mandelbaum (1990) discussed how older members of the all-male Plains Cree Warrior Society could distribute the possessions of the younger warriors without consulting them, and how warriors had to follow specific rules and obligations regulating their behaviour, including being required constantly to give away wealth and horses.

As well, with reference to the initiation process for young boys conducted by Bantu villagers in the Congo region, Turnbull (1961:220-225) noted that the neighbouring Mbuti Pygmies, despite the fact that they made their young boys enter the villagers' initiation schools, considered it to be an "unnecessarily brutal ritual" beginning with the actual circumcision followed by several months of mild physical and mental torture and tests of endurance, including food taboos and various other restrictions. On the other hand, the *elima* ceremony, the initiation for young Mbuti girls with the first arrival of menstrual blood (see Turnbull 1961:184-200), was treated more as a celebration of life and adulthood, and for all Pygmies was one of the happiest, most joyful occasions in their lives (Turnbull 1961:187). Moreover, other accounts imply that some women in particular societies may have had relatively more power and authority than generally and unquestioningly assumed for all women in that society. For example, among the Blackfoot, the first wife or "sits-beside-him" wife of a man directed and had authority over all other wives of her husband, and was allowed at informal gatherings to smoke the pipe and participate in the conversation (Grinnell 1962:217-218; see also the discussion dealing with the myth of male dominance in this

chapter). Similarly, the articles in Klein and Ackerman (1995) demonstrate that women in many native North American societies had, both historically and more recently, more power and authority than many previous observers have suggested. Concepts of universal male dominance and universal female subordination within and between societies clearly are frequently distorting and inappropriate.

Similarly, the demonstration that "woman" and "man" are not universal categories within and between cultures also indicates that a simple statement characterizing the status of men and women in a society cannot be made. In the mid-1970s there was no agreement on an operational definition of "women's status" (Brown 1975:237); more recently, there is still controversy over which measures, such as the control of resources and production, or access to technology and prestige and power positions, are the most relevant for indicating female status (Miller 1993:7-8). In fact, as previously mentioned in Chapter II, because they have been interpreted ethnocentrically and incorrectly, some of the various signs that were assumed to have status implications for women may have none (Whyte 1978:169).

An indicator often cited as having status implications for women (in this case, indicating lower, subordinate status) is the presence of menstrual taboos. For example, Young and Bacdayan (1965) viewed restrictions placed on women during menstruation as institutionalized ways in which males discriminated against women (see a related claim in Harris 1993:59). However, others argued that menstrual taboos and the belief in the pollution of women were actually symbols of high power and status of women (see Devereux 1950, cited in Whyte 1978). For example, Weist (1980:260) noted that restrictions on menstruating women in North American Plains societies appeared to be associated, not with ideas of pollution, but with conceptions of the power of menstrual blood. Maranda (1974:183, 201) even noted that women amongst the Melanesian Lau of the Solomon Islands regarded their seclusion in their menstrual and birth huts, not as a hardship, but rather as a "monthly vacation" and as havens from husbands and everyday life. The question immediately arises as to why it must be assumed that it was men who banished women to menstrual huts, instead of women possibly making the choice of being isolated during menstruation. Among the Athapaskans of the Yukon Territory, at the onset of menstruation, a young woman was secluded from the main camp for a period lasting from a few weeks to several months (see Cruikshank 1979:5, 14; 1990:10-11). At this time, she had to obey strict food taboos, could be visited only by women, and, most importantly, received detailed instruction from the older women about her powers as a woman, as well as the appropriate roles for women and the technical skills needed to perform those roles and tasks. Oral accounts recorded by

Cruikshank (1990:10-11, 359) indicated that instead of viewing secluded women as polluting, these women were actually admired and given high status, especially those women who had long seclusion periods. The reason for this admiration, according to Cruikshank (1990:11), was that sequestering was associated with learning ritual and practical knowledge unavailable to men. Cruikshank (1979:20, 1990:11) even noted that some of the women she had interviewed expressed regret over the fact that this type of training, in which older women had a very clear instructional role, had essentially been abandoned in recent times.

In addition to the argument over the measures of female status, there is also disagreement over which factors are the most important for determining high and low status for women. Some researchers proposed that the extent to which the domestic and public spheres were dichotomized was a major determining factor of female status; that is, in cases in which the domestic and public were highly differentiated and women were isolated in the domestic realm, they had low status, whereas in cases in which the spheres were overlapping, tasks were interchangeable, and women had access to extradomestic activities and thus higher status and autonomy (e.g., Lepowsky 1990:177, 179; Rosaldo 1974:36). Sanday (1981) suggested that in harsher and more hostile physical habitats and social environments, women tended to have lower status. Leacock (1992:232) argued that female status depended upon how women's economic contribution was structured, that is, whether or not women controlled the conditions of their work and the dispensation of the goods they produced. Similarly, Friedl (1975:61) proposed that the essential elements for understanding differences in power between the sexes, which was ultimately related to status, were the rights of distribution and the control of channels of distribution of valued goods and services, rather than rights and control over production. Sacks (1974) argued that the issue was whether or not women were allowed to participate in and control the social production of goods for exchange, and Sanday's (1973, 1974) model of female status rested heavily on women's contribution to production as an intervening variable. However, as Moore (1988:29, 35) noted, it is difficult to see how the status of women or what "woman" means culturally in any society can be directly and simply determined from what women do in society and their position in the relations of production.

Another situation that further confuses the issue of determining status is the fact that in many societies, although men were represented as being dominant and having higher status within the society, and both women and men actively engaged in maintaining this illusion, women actually possessed and wielded considerable amounts of power--they were able to act, speak out, and make decisions. This situation is often

referred to as the "myth of male dominance" (see Rogers 1975 and Skinner 1993 for examples). For example, Maranda (1974) illustrated that despite the appearance of male dominance among the Melanesian Lau of the Solomon Islands, women were able to challenge male authority and decisions, could refuse an arranged marriage, could dissolve an engagement and initiate divorce, could escape to the women's area which was off-limits to men, and were able to check decisions and air grievances through spirit possession. Similarly, Meigs (1990:106) illustrated that despite the many aspects that suggested male dominance among the Hua of the Eastern Highlands of Papua New Guinea (e.g., patrilineality, tales of gang rape, segregation of the sexes, the denigration of the female body, and the exclusion of women from ritual knowledge), there were also many aspects that created the image of high female status (e.g., women could search for husbands, and undermine male prestige through noncooperation). In addition, Friedl (1967) demonstrated for the Greek village of Vasilika that underneath the outward appearance of male dominance and high prestige, women, in fact, had access to and exercised considerable "informal" power and influence.

It is apparent that the determination of status and value of a particular gender/sex is problematic and not as simple and straightforward as many assume. Status determination and interpretations of dominance and subordination require evaluation by the observer or the actor of the things men and women do and say (Milton 1979:49). However, archaeologists and anthropologists often bring western or state-level assumptions about status, power, value, and equality into their work. Every culture has its own conception of the position and value of men, women, and individuals in social life; moreover, the particular combination of traits that make up such conceptions varies greatly from society to society (Whyte 1978:119).

Anthropological studies (e.g., Gottlieb 1990:129; Lederman 1990; Meigs 1990; Sanday 1990b; Schlegel 1990) even suggest that for some societies there are multiple gender ideologies, multiple models of gender symbolism, and multiple statuses and gender meanings for men and women which change through an individual's life cycle. An individual's rights and obligations in relation to other sex-age groups and the domains in which he or she can attain prestige and status will vary with progress through the life cycle (Solway 1992:49-50). For example, Solway (1992:50) demonstrated that in Bakgalagadi society, there tended to be a blurring of sex-role distinctions toward middle age, and an increase in opportunities for women for the achievement of high status (see additional articles in Kerns and Brown 1992 that emphasize the changing positions and "status" of women during their middle-aged and postmenopausal years). Clearly, societies do not categorize their members and attach

value and status strictly on the basis of gender, but also according to age, marital status, reproductive status, political rank, and numerous other factors (Tiffany 1979:4).

In addition to the factors of culture and age, individuality will also result in variation in status and value determinations. Each person, regardless of gender, is unique, makes his or her own choices and decisions, and negotiates differently with people depending upon the situation and context. In one situation or domain of social life, a woman or a man may have control, high status, respect, and power, whereas in another situation, he or she may not. As Meigs (1990) noted for the Hua of Papua New Guinea, it was possible for women to be dominant and respected in some spheres and subordinate in others, the same holding true for men (see Lee 1982:39 for a similar claim for the !Kung). In other words, the identity of an individual, including aspects of power and status, is not a constant, but rather may be a radically negotiable, context-dependent construct (Wylie 1992b:60). A woman interacting with children will no doubt act much differently, use different strategies, and command different levels of respect and status than she would if she were dealing with other women or men who were friends, spouses, relatives, or strangers.

In addition, as Solway (1992:50) suggested, often the domains of social life in which individuals can attain prestige and status are different for men, women, the young, and the old, and thus are not necessarily comparable in all respects. However, women's status can be studied only in relation to something else, and that something else is most often some vague notion of men's status (Miller 1993:13). However, as Miller (1993:13) asked, is men's status a universal against which women's status at any place and any time can be assessed? More likely, male status also varies according to culture, context, and situation.

In a comprehensive cross-cultural study examining how a wide range of "aspects" of the status of women relative to men varied, Whyte (1978:116) concluded that there was no evidence for the existence of any general "status of women" complex that varied consistently from culture to culture; rather, the so-called indicators and aspects of status tended to vary independently from culture to culture. Clearly, the evidence suggests that status is a dynamic phenomenon and not a unidimensional feature (Solway 1992:49-50; Tiffany 1979:4). Because the concepts of equality and determination of status and value are all subjective, culturally specific, and dependent upon context and historical conditions, their measurement and comparison in an "objective" manner are not possible. Obviously, there are currently no consistent measures of status that are applicable across cultures (Cohen and Bennett 1993:274). Therefore, one cannot search for the best single indicator of the status of women (or

men, for that matter), or for a universal position of women in society; instead, one must start with the assumption that there is no coherent concept of or no simple entity as the status of women (or men) that can be identified across or within cultures (Bleier 1984:140-141; Whyte 1978:170).

Critique of the Commonly-Held View of the Sexual Division of Labour

In addition to demonstrating the variability and complexity of the categories of "woman," "man," and "mother," gender research has also illustrated that in many cases the common view of a rigid sexual division of labour characterized by men as hunters and public leaders, and women as gatherers and domestic workers is inappropriate and very restrictive. In fact, data from various ethnographic accounts appear to deny the universality of the woman-the-gatherer, man-the-hunter model; instead, they advance the idea that hunter-gatherers (see Estioko-Griffin and Griffin 1981:143) and other non-state and non-western societies were and are remarkably flexible in their organization. Similar claims have been made with regard to early hominid adaptations. For example, Zihlman (1981:97) argued that the traditional assumption that males had been the providers and females the nurturers ignored the flexibility of both sexes. Instead, both sexes must have been able to care for and protect the young and make tools (Zihlman 1981:97). Moreover, as Zihlman (1981:103) concluded, no specific physical characteristics can be interpreted to signify that only males hunt and females gather; thus, a division of labour probably evolved late in human evolution and has been never absolute and rigid.

Increasing ethnographic evidence from hunter-gatherers and other non-state societies is now emerging that suggests that women and men often have multifaceted and flexible roles; moreover, their activities and spheres frequently overlap, with a considerably less rigid distinction between male and female roles than previously believed (Draper 1975:77). In other words, many groups did not and do not regard the sexual division of labour as fixed and bound. Despite having work that is seen as typically women's or men's, individuals often crossed these sex lines without hesitation and without losing status or respect. Turnbull (1961:110, 154) noted for the Mbuti Pygmies of the Ituri Forest that what little specialization existed according to sex was not exclusive; for example, women could participate in the discussions of men, while men, without feeling ashamed, would frequently pick mushrooms and nuts, and wash and clean babies. In addition to the Mbuti, this situation of role flexibility and overlap has been noted for many other non-state societies, including the !Kung (Draper

1975:87), the Cree of the James Bay region (Flannery 1935:82-83), Inuit groups (Briggs 1974:270-271; Bodenhorn 1990:60), the Coastal Algonkian (Grumet 1980:54-56), the Athapaskan Indians of the Yukon Territory (Cruikshank 1990:10), North American Plains groups (Weist 1980:262), the Bari tropical horticulturalists in Colombia-Venezuela (Buenaventura-Posso and Brown 1980:118-119), the Ilongot of Philippine society (Rosaldo 1974:39), and the Vanatinai on an island southeast of the New Guinea mainland (Lepowsky 1990).

Among the Eskimo (see Briggs 1974:270-271) and more specifically the Iñupiat (see Bodenhorn 1990:60), men and women were not seen as incapable of doing tasks generally assigned to a member of the opposite sex. If a family was short of daughters, a son may have been brought up to help his mother. Conversely, if a family had no sons, a daughter may have been brought up as a hunter. If there was a shortage of men, women were recruited to go on the whale boat. Murdoch (1892:413, cited in Bodenhorn 1990) provided numerous accounts of good female hunters (Bodenhorn 1990:60). Despite the fact that it was women who generally did the sewing, men's hunting kits always contained a set of sewing tools (Bodenhorn 1990:60). Often orphans, because they had no relatives to take care of them, acquired the skills of both sexes. Briggs (1974:271) recounted a case of a young orphan woman who had lived with a remote relative by marriage and had performed a wide range of tasks including baby-sitting, hunting seal and caribou, and backpacking hindquarters of caribou long distances. In fact, admiration was expressed for women who were good hunters, and men frequently sought their opinions (Briggs 1974:271). The results of a recent Inuvialuit oral history project (Nagy 1994:112) lend further support to the claim that Inuit gender/sex roles were much more flexible than typically portrayed, and that many Inuvialuit women were, in fact, very proficient in trapping and hunting skills, skills not exclusive to men.

In addition to flexibility in the sexual division of labour, another feature more recently revealed by gender research as frequently characteristic of non-state and non-western societies is that of the complementary nature of men's and women's productive roles, and the interdependent cooperation between men and women, rather than one sex being highly economically dependent upon the other, as implicitly suggested by the "Man the Hunter" model. There are references to men's and women's work being complementary and interdependent, and major economic tasks often being performed cooperatively by both sexes among, for example, the Mbuti of the Ituri Forest (Turnbull 1961:154), the Vanatinai (Lepowsky 1990:184), the Australian Aborigines (Kaberry 1939:27, cited in Rohrlach-Leavitt et al. 1975:115; Bell 1980:244), the Melanesian Lau

of the Solomon Islands (Maranda 1974:200), the Coastal Algonkian (see Grumet 1980:56 for details and references), various northeast Florida groups prior to colonization (Trocilli 1992:96), the Koyukon Athapaskans of Alaska (Charles Schweger, personal communication 1995), and the Bari on the Colombia-Venezuela border (Buenaventura-Posso and Brown 1980:118-119; see also the various articles in Dahlberg, ed. 1981 which suggest balance and interdependent cooperation between the sexes for numerous other non-western societies). Many other works (see the articles in Etienne and Leacock, ed. 1980) have also discussed the importance of this principle of female-male complementarity for many non-western societies, and its inevitable clash with the hierarchical organization that was introduced with European colonization.

This complementary nature of roles and tasks was acknowledged by various groups, and was frequently reflected in their ideology and the value they placed on men and women and their work. While differences between men and women and their roles and work were frequently noted, they were equated, not necessarily to inequality and hierarchical notions of value, but rather often to complementarity, interdependence, and balance. As Joyce (1993:271-272) discussed in detail, although complementarity involves recognizing and ranking differences arbitrarily, it is not the same as assigning values and creating hierarchies. Moreover, the concept of complementarity does not necessarily involve two dichotomous aspects, such as male and female, but may include a potentially unlimited number of individuals and categories (Joyce 1993:271). Among many societies, both men and women, because they perform tasks that are essential to survival, are valued by the opposite sex (Matthiasson 1974:428). As noted by Turnbull (1961), among the Mbuti, although sexual differentiation was a major principle of social organization, used along with age in the division of labour, the Mbuti worked hard at emphasizing the complementarity and interdependence of the sexes (Turnbull 1981:219), and considered women as essential partners in the economy (Turnbull 1961:206). Similarly, among the Birom of northern Nigeria, both men and women, with their specialized but complementary roles, recognized their dependence on one another (Smedley 1974:213).

For the Iñupiat, the interdependence of men and women in both hunting rituals and survival was acknowledged and appreciated (Bodenhorn 1990:65). Because without fur clothing and waterskin boots, a man could freeze to death, the skills of women were perceived as being as indispensable to Eskimo survival as those of men (Briggs 1974:288). The ideologies of the Nuu-chah-nulth of the west coast of Vancouver Island (see Moogk 1991:106) and the Tokelauans and the Samoans from the islands of the central Pacific (see Huntsman and Hooper 1979; Tiffany 1979:21-22),

while stressing the differences between the sexes and the fact that men and women were not the same, also tended to emphasize that both men and women were valued, neither was superior, and both were equally important and complementary to the society. Similarly, Danziger (1991:309) noted for San Antonio, a village in southern Belize, that the high degree of economic interdependence between men and women was explicitly acknowledged and cited by informants as the basis for mutual cross-gender respect. In these and other similar cases, the division of labour by sex characterized by the assignment of typical but complementary tasks for men and women was likely not because of biological differences--that is, not derived from sex-specific skills or from the different physical attributes of men and women and the apparent limitations of child care for women--but from the fact, as Sharp (1981:238) argued for the Chipewyan, that interdependency itself was useful.

Along with this evidence for the importance of role flexibility and complementarity among hunter-gatherers and other non-state societies, many ethnographic and historic accounts indicate that women have performed a much wider range of activities than suggested by stereotypical views of gender/sex roles. For example, there are indications that women in Coastal Algonkian society (Grumet 1980:56-58), in Tlingit society (Klein 1980:93, 97), among the New Guinea Mendi (Lederman 1990:49), and in Vanatinai society (Lepowsky 1990), to name but a few, played central and prominent roles in trade, traditional exchange, and managing wealth, had the autonomy to determine the allocation of the products of their labour, and, in doing so, often travelled as far as men to exchange goods.

Also, in many societies, women participated in significant ways in the so-called political activities of their groups. Among the Iroquois (see Brown 1975, 1979b), although women could not serve on the Council of Elders, matrons had the power to raise and depose ruling elders, and influence the decisions of Council and those related to the conduct of war and treaties (Brown 1975:238-239). Grumet (1980:49-53) identified numerous ethnographic accounts that referred to women among the Middle Atlantic Coastal Algonkian becoming chiefs, leading groups at both the village and tribe level. As well, women in many societies were clearly able to participate in publicly recognized ways in political, economic, and social decision-making processes (e.g., Faithorn 1975:129; Lepowsky 1990). For example, Leacock (1980:29) noted that among the Montagnais-Naskapi, women were involved in making important decisions about the group's movements, journeys, and winterings, which would affect the entire group and not just the so-called "domestic" arena.

In some cases, women had significant control over the economic organization and production of the society. For example, with their control of the stored food and the right to distribute and dispense all food, even that procured by men, as well as their control of supplying hunting, war parties, and village festivals, women held a powerful position in Iroquoian society (Brown 1975:248, 250-251). As in the cases of many other societies, for example the Mundurucú of the Amazon region (Nadelson 1981:246), the Chipewyan of the northern boreal forest of Canada (Sharp 1981:228, 230), and the Mistassini Cree of Quebec (Tanner 1979:153), as soon as the meat procured by men was brought into the camp, it became the property of the wife or mother, who then had the right to control the distribution of that meat. For the !Kung, women retained control over the food they had gathered and its distribution after they returned to the village. Because the distribution of meat was circumscribed by social rules and demands of fellow camp members, however, a !Kung hunter had little effective control over the large game meat that he had brought into camp (Draper 1975:84).

In addition to the numerous references to women hunting among some hunter-gatherers and non-western societies (see Chapter II), there are also accounts of women participating in spiritual and healing activities as medicine women and physicians. Grinnell (1962:216, 286) noted that many of the doctors of the highest reputation amongst the Blackfoot were women, naming Wood Chief Woman and Two Bear Woman as examples. In another account of the Blackfoot, McClintock (1992:324) mentioned Snake Woman, a celebrated Blackfoot herb doctor and medicine woman. As well, Grumet (1980:53-54) provided references that attested to the presence of medicine women amongst the Coastal Algonkian, and Cruikshank (1979:35) noted that there were accounts of women healers among the Athapaskan Indians of the Yukon Territory.

Contrary to the common notion that women were confined to the home camp while men were the ones who travelled, knew the land, and were responsible for external relations, women among the Vanatinai had a remarkable degree of physical mobility for attending feasts and undertaking journeys (Lepowsky 1990:187). Similarly, because it was traditionally the woman's job among the Iñupiat to bring the hunted meat back home, they knew the land as well as the men, and were often better dog handlers and trackers (Burch, personal communication cited in Bodenhorn 1990:60). Moreover, women among northern hunters would need intimate knowledge of the terrain not only for transporting meat, but also for other activities such as collecting and transporting resources like berries, spruce roots, and birch bark (Charles

Schweger, personal communication 1995). Hearne (1971:90) noted that among the Northern Chipewyan Indians, whenever the men had killed any large animal, it was the women who brought it back to camp for processing and cooking. Moreover, the fact that women travelled with Hearne for parts of his expedition to the arctic shore in the early 1770s, and carried the heavy loads, and, when separated from the men, managed to travel and support themselves, indicates that they necessarily had to be as knowledgeable about the terrain and resources around them as the men. Hearne (1971:262-264) even made reference to meeting a native woman who had been living alone for at least seven months after she had escaped from a group of Indians who had taken her prisoner. As Hearne (1971:262-263) noted, she was in good health and condition. As well, she had managed to support herself by snaring small game, had made herself a hut, a pair of snowshoes, and fishing nets, and had even accumulated a stock of provisions.

Kornfeld and Francis (1991:444-445) outlined the wide range of activities undertaken by native North American Plains women. More specifically, references have been made to women participating in warfare and raiding activities among the Crow, Gros Ventre, Mandan, Pawnee, Cheyenne, and Blackfoot (e.g., Ewers 1969:190; Grinnell 1923:157; Medicine 1983; Weist 1980:263). Studies documented accounts of Sioux women of childbearing age who had driven buffalo on horseback (Landes 1968:49, 69, 165), had instigated and joined war parties (Landes 1968:39, 50, 111, 206), and had stalked, scalped, and mutilated enemies, earning war honours, as men did, for brave deeds (Landes 1968:49, 69, 166, 212, 213; Whitehead 1981:91). As well, an autobiography of a Northern Cheyenne woman named Iron Teeth, in addition to discussing women in battle, recounted how she had often hunted both with her husband and alone, and had searched for wild horses that she would tame and break herself (Limbaugh 1973:8, 15-16). Among the Peigan, women who exhibited characteristics of aggressiveness, boldness, independence, and sexuality, most of whom were postmenopausal, were given manly heart status, a phenomenon well documented by Oscar Lewis (1941). Dempsey (1980:71) made reference to a manly-hearted woman named Revenge Walker, who was a sister of Red Crow, the head chief of the Blood Tribe in the late 1800s. Revenge Walker "rode like a man, hunted buffalo, and was an excellent shot." Grinnell (1923:156) reported that Cheyenne women possessed great influence especially in tribal matters and were "the final authority in the camp." In the religious activities of the Kiowa-Apache, Cheyenne, Arapaho, Gros Ventre, Sioux, Cree, and Blackfoot, women played central symbolic and ritual roles (Weist 1980:259-260), and among the Missouri River groups, women participated in inter-tribal trade

networks (Weist 1980:262). Among the Blackfoot, women may have had considerably more political and economic influence and power than traditionally assumed. A Blackfoot woman made and owned the lodge and almost everything in it. Since women's labour produced more finished products than men's hunting, it is likely that women controlled considerable amounts of wealth (Conaty 1995:407).

In summary, from the few examples presented here and the growing research dealing with gender aspects, it has become apparent that there is no common and logical correlation between a particular tool, craft, task, or idealized behaviour and a specific gender/sex (Bruhns 1991:427); thus, the universality of a rigid sexual division of labour can no longer be assumed (Wylie 1991a:18). As Bruhns (1991:427-428) suggested, the only activities universally restricted to a specific sex are pregnancy and insemination.

Critique of the Concept of the Domestic/Public Dichotomy

As demonstrated above, the tendency for anthropologists and archaeologists to treat "woman" and "man" as single, natural, yet opposing categories is questionable. Moreover, the projection of a domestic/public dichotomy onto this supposed dichotomous female/male division is suspect as well (see Joyce 1993:272 for a more detailed discussion). This domestic/public dichotomy has long influenced anthropological and archaeological interpretation, as is evident in Engels' (1972) separation between the economy and male productive tasks and the family and female domestic tasks (see Vogel 1983, cited in Moore 1988:48-49). Of course, as discussed previously, this belief that everywhere domestic life is separated from a public sector is based on modern values, derived in a large part from nineteenth-century Victorian ideals (Albers 1983a:4-5; Gero 1991b:174).

The beliefs that the domestic sphere is universally demeaned and subordinate to the male public sphere, and consequently that women are somehow seen as less than persons because they are associated with the domestic sphere, underlie many anthropological and archaeological interpretations. However, this assumption of the denigration of the domestic sphere is not necessarily cross-culturally valid (see discussion in Moore 1988:40). Moreover, it is not, contrary to the view held by many feminists, necessarily a universal western or state-level phenomenon. In addition, there appears to be a tendency among researchers to assume that domestic activities and the content of domestic life are natural, constant throughout history, and generally known (see Moore 1988:53-56 for more detailed discussion and references). As Moore (1988:53) noted, though, women's domestic and reproductive labour cannot be assumed

to be a set of naturally given tasks common to all societies at all times, any more than it can be assumed that all women performed these tasks.

In addition to not assuming that the nature of domestic activities and household organization and relations is fixed and known, archaeologists and anthropologists cannot assume that the household was a bounded unit, and thus give little consideration to women's involvement in kin and non-kin networks outside the household. For example, Kessler (1976:247) even argued that because women had been excluded from the public sphere for thousands of years, they had been unable to interfere in the male pattern of culture building. There are clear implications here that women were confined to the domestic realm, and that men were responsible for creating culture with their control of the public domain and their total exclusion of women from public activities. There is, however, often a great deal of cooperation and collectivity in domestic work between households, as well as the use of kinship and non-kinship links by women to gain access to resources outside the household, and to establish and maintain links between groups (see Moore 1988:61, 165 for further discussion and references). Households cannot necessarily be reduced to either the so-called private or domestic sphere. In fact, they were more likely the centres of a wide range of individual and group activity resulting in the formation of social and economic alliances. As Joyce (1993:272) claimed for pre-Hispanic southern Central American societies, and seems logical for other prehistoric and contemporary societies, households often were very public places.

The structural opposition inherent in this private/public dichotomy model may be appropriate in some cases for western or state-level, industrial, suburban societies (however, even this view is highly questionable), but it most likely distorts the structure and character of gender relations in non-western, non-state, and prehistoric groups (Conkey and Spector 1984:19; Leacock 1978). For smaller scale communities that are not structured along class lines, where household production and management are simultaneously public, economic, and political, the analytical separation of social life into domestic and public spheres makes no sense at all (see Leacock 1992:226, 228, 229). For example, Bodenhorn (1990) demonstrated the unsuitability of applying the private/public dichotomy to the Iñupiaq culture of Alaska. Lamphere (1974) and Nelson (1974) also argued that the domestic/public distinction was insufficient and unrealistic in many cases because the so-called political male sphere could not necessarily be separated out from the so-called female domestic sphere. The social world cannot be simply reduced to spheres of private and public, with power limited to

males in the so-called public arena (see Nelson 1974 and her discussion of women in Middle East societies).

The examples provided in this chapter, and numerous other ethnographic accounts and studies of male/female roles (e.g., Albers and Medicine 1983; Claassen, ed. 1992; Dahlberg, ed. 1981; Matthiasson, ed. 1974; Reiter, ed. 1975; Tiffany, ed. 1979) have illustrated that women's and men's activities flexibly cross the artificial dichotomy of the female domestic sphere and the male public sphere. As Bolen (1991:403) argued, this situation points to "the mediation of people within a system of flexible mutual interdependence." Gender research has clearly shown that the domestic/public dichotomy is problematic, artificial, analytically constraining, and potentially distorting (Moore 1988:30, 49). By viewing the world dichotomized into domestic/female and public/male spheres, archaeologists create an inaccurate focus of research on the mutually exclusive separation of women's and men's roles, rather than on the flexible, changing ways that women and men interdependently interacted in the past (Spencer-Wood 1991:237).

Summary of Critiques

Gender research of the past 30 years has demonstrated both the diversity of ideologies of femaleness and maleness, and the tremendous variability in sex roles, relations, and hierarchies within and between cultures, especially with reference to the wide range of active and powerful roles performed by women (Wylie 1992a:26, 1992b:53). As Moore (1988:73) argued, social and economic change is a continuous process which is constantly transforming and recreating the sexual division of labour and gender relations. In essence, gender systems and relations have no fixed universal essence; they vary across time and space, are fluid and flexible, and are grounded within the context of a particular culture (Flax 1987:642; Stine 1991:499). As Whyte (1978:168) noted, the emphasis on universals must be abandoned and the reality of cross-cultural variation acknowledged. Because of this lack of any universality in gender relationships amongst hunter-gatherers and other non-western groups (Duke 1991:281), archaeologists cannot assume that gender inequality, a sexual division of labour with restricted female roles, and a division of female domestic and male public spheres, necessarily existed in past cultures.

Thus, there is an obvious need to move away from the cultural stereotypes of state-level society and away from labels, categories, and blanket universal judgments about gender/sex roles and gender systems. Instead, focus should be placed on conflict,

variability, and contradictions with an emphasis on context (e.g., see articles in Sanday and Goodenough 1990; Sanday 1990a:1). As Tiffany (1979:3) noted, social reality is rarely so simple that it can neatly be categorized without distortion. In fact, more often than not, it is the archaeologists and anthropologists who have created categories and definitions that dichotomize men and women, public and domestic, hunter and gatherer, nature and culture, and high and low status. Reductionist models that attempt to account for women's position and experiences in all societies limit a researcher's analysis (Webster 1975:150). Archaeologists need to stop projecting universal and state-level hierarchical systems and values onto other societies and the past; instead, they must abandon their unquestioned state-derived notions of male and female roles and relations, going beyond the limitations of the classic binary schemes (female/weak/domestic and male/strong/public) so prevalent in anthropology (Gottlieb 1990:130) and carried over into archaeological research.

Seeing Gender in the Archaeological Record: Task Differentiation

Cannon (1991:148) argued that gender as a social division is without material culture referent, and thus gender is archaeologically irrelevant as a strictly-defined social category. As well, Claassen (1992:4) suggested that the high probability that gender is invisible in prehistory accounted for the uncertainty about how to do an engendered archaeology (Claassen 1992:5). She argued that despite New Archaeology, post-processual, and feminist approaches, archaeologists still approached artifacts, ecofacts, features, and their matrix in essentially the same way as they had for 100 years (Claassen 1992:6). There remains a tendency to adopt a functional view of gender, seeing it as ensuring social maintenance and reproduction and thus legitimizing women's confinement to the domestic realm (Conkey 1991:28).

It is fairly apparent that gender affects, is represented in, and may create to some degree material culture patterning (Gibbs 1987:80). Moreover, archaeologists must acknowledge that conversely, material culture actively structures gender arrangements and other sociocultural phenomena (Conkey and Spector 1984:24). Whelan (1995:50) claimed that gender should be highly visible in the material record, given that gender categories are not only marked behaviourally, but also materially and spatially. But although gender may be manifested in material culture, ultimately, as a "culture construct," the concept rests as a social reality, not a physical one (Bolen 1991:403). If gender is a cultural construct, then, what implications does this view have for archaeology, a discipline which focuses on material studies?

Gender, as a principle which organizes social arrangements, is continually renegotiated, reconstituted, confirmed, and maintained because it exists through people's creation and conception of it (Bolen 1991:404); therefore, it becomes extremely difficult to ascribe gender-specific meaning to archaeological data. The majority of research that does attempt to ascribe gender to archaeological data primarily focuses upon determining material correlates of gender roles, that is, assigning gender or sex based on tasks and associated material items. For example, Spector (1983) was one of the first to deal with the problems and difficulty involved in studying task differentiation and attributing archaeological site patterning to male or female activities. By combining perspectives of contemporary archaeology and feminist anthropology, she developed an analytical framework dealing with male/female task differentiation, using as a case study the nineteenth-century Hidatsa Indians. Spector's (1983) approach, as she noted, is similar to ethnoarchaeological research. Examining ethnographic accounts of the nineteenth-century Hidatsa, she focused on determining the organization of males and females in the execution of tasks, and spatial, temporal, and material dimensions of those tasks. Her next step involved emphasizing sets of relationships between tasks and the dimensions of task differentiation by constructing a series of activity maps of tasks and locations.

As Spector (1983:96) noted for her attempt in studying male/female task differentiation, these studies were still in preliminary stages, and were hampered by many difficulties and limitations. She argued that there was a need for more ethnoarchaeological field studies before the task differentiation framework could be adapted for application to archaeological assemblages (Spector 1983:93). Clearly, one of the major reasons for the difficulty in assigning gender/sex roles and studying task differentiation is that the boundaries of gender-organized tasks are not clearly understood (Guenther 1991:9). As previously discussed, it is possible that in some situations and cultures, gender-based division of labour may have been more flexible, with men engaging in what was generally seen as "female activities" and women participating in "men's work" (Guenther 1991:20). Because of this potential for the overlapping of male and female tasks both within and between societies, direct gender attribution of tools thus remains problematic (Gero 1991b:176).

However, there still remains the tendency amongst archaeologists to link unquestioningly certain activities and artifacts with each gender/sex, such as linking projectile points with males and ceramics with females (Conkey and Spector 1984:7). For example, related to these consistent associations of artifacts with certain sexes is the assumption, as noted by Bolen (1992:53), that prehistoric stone tool makers and users

were predominantly male (e.g., White and O'Connell 1982:87, cited in Bird 1993:23). However, this assumption is unrealistic. Women would have needed to use various types of stone tools in performing their daily activities; it is unlikely that they waited for a man to produce a flake or tool, or else borrowed flakes and tools from men all the time. Instead, it would have been more efficient for women to make their own tools rather than relying upon men for these needs (Gero 1991b:170). Women, no doubt, had access to lithic sources, and, if not exotic raw material, then certainly, at least local stone sources (see discussion in Gero 1991b:171-173). As Schultz (1992) demonstrated, lithic endscrapers require frequent resharpening (over 100 times) during the scraping of a single bison hide. If women did the majority of hide working, as ethnographic accounts suggest, then it is highly unlikely that they would interrupt their work over 100 times to ask men to sharpen their hide-scraping tools. Moreover, if women could sharpen lithic tools, it seems plausible that they were capable of making stone tools as well. As Gero (1991b:175) illustrated, there is no reason to associate women solely with expedient tool manufacture and use and assume that they did not produce finely finished tools, whether made of stone, bone, or other material. Although the Chipewyan no longer use many stone tools, Brumbach and Jarvenpa (1994) observed that women carefully maintain and curate assemblages of implements used to process moose and caribou hides. These implements are not expedient in nature, but rather are high-investment curated tools. It is entirely possible that prehistoric women also maintained and curated their own tools, whether made of lithic, bone, or wood, for specific tasks.

Bird's (1993) review of evidence for women making stone tools in Australia and New Guinea suggested that, in some cases, there may be a difference between men and women in their choice of raw materials, manufacturing techniques, and tool kit. While this is a potentially promising avenue of research for detecting certain patterns that may represent men and women in the archaeological record, archaeologists should be careful not to generalize and resort to universal assumptions such as the belief that all women used local raw materials and made expedient tools. As Gero (1991b:174, 175) asserted, male/female task differentiation, and consequently the raw materials that each used, the tools that each made to perform those tasks, and in general the tasks women and men performed within tool production would be conditioned by the context of social relations, and by the social and symbolic value of what was being made or done; thus differences could be expected in each society and each context.

This difficulty in identifying gender-related phenomena in the archaeological record, that is, distinguishing archaeologically between male and female activities,

roles, and artifacts, has made it easy for archaeologists, when reconstructing prehistoric gender/sex roles, to turn to an uncritical reliance upon selective ethnographic analogies and state-level assumptions about gender. This practice, in turn, frequently leads archaeologists to conclude that women are essentially "invisible" in the archaeological record (e.g., Hayden 1977, 1979; Isaac 1979; Thomas 1983; see discussion in Chapter II). However, recent studies of gender/sex roles and subsistence activities in contemporary and historic hunter-gatherers and other non-western societies have suggested that the supposed male bias of the archaeological record with women being invisible may be deceiving in many cases (Bird 1993:23).

For example, why do Thomas (1983) and Isaac (1979) assume that bone is strictly a male ecofact? There is clear evidence for women hunting in some societies (see Chapter II); thus faunal material cannot be regarded as indisputable evidence of male hunting activities (Bird 1993:23). Moreover, if women processed and cooked, as well as helped in the hunt, there would be a large female contribution to bone remains recovered in an archaeological context. Similarly, lithic tools are often attributed to men; however, there is abundant evidence demonstrating that women made and used not only tools made from organic materials but also those made from stone (e.g., Bird 1993; see also discussion and references in Gero 1991b), including at least one ethnohistoric observation (e.g., Holmes 1919:316) of North American native women making projectile points (Gero 1991b:170).

Ethnographers traditionally portrayed North American hunting-gathering societies as having well defined separation or organization of tasks divided along gender lines. But this view in fact may relate, as Guenther (1991:20) suggested, to accounts made by early explorers that had described Indian men idly smoking while women continually worked, tanning hides, cooking, and collecting water. If this description is reliable, then archaeologists are actually forced to conclude that the majority of archaeological sites resulted from female activities (Guenther 1991:20). But denying and lessening the significance of men's contribution to subsistence, and viewing women as slaves to men is no doubt the result of biased statements made by European observers about a division of labour and lifestyle that was unfamiliar to them (Rothenberg 1980:70). Moreover, the assumption that women who participated in a large share of the labour were essentially reduced to slavery and controlled by men (as many had assumed for Australian as well as North American native groups), ignored the possibility that a greater input in economic tasks may have allowed women greater decision-making power than originally assumed (Leacock 1972:34; Rohrllich-Leavitt et al. 1975:112).

A More Comprehensive Archaeology of Gender

Since it is difficult if not impossible to determine which sex or gender made or used an item, does this difficulty mean that artifacts and other material evidence of past societies must remain gender-free commodities, and that archaeology should dispense with a gender-based perspective? Is it necessary that archaeology limit itself to examining fundamental matters such as subsistence and economy, chronology and dating, and the function of tools and features (i.e., those aspects of culture that are more clearly represented by material remains), or can archaeological data provide information dealing with all aspects of past societies, including that of gender?

Archaeology is destined to have problems implementing and studying gender by solely using the task differentiation approach and focusing on determining material correlates for gender by connecting gender or sex to artifacts and devising testable hypotheses. By approaching gender in this static manner, archaeologists are restricting how much can actually be said, since gender is a cultural construct and not so easily represented materially in the archaeological record. The results often are simply trivial insights about gender relations. The difficulty in trying simplistically to connect gender to the archaeological record has led some archaeologists to the conclusion that gender is inaccessible in the archaeological record. Moreover, because of the assumption that men were associated with hard durable materials through their hunting activities (i.e., bone and lithic material), and women were associated with soft materials through their focus on gathering (i.e., plants and wood), it is concluded that women are necessarily invisible in the archaeological record. The archaeological invisibility of females, however, is more likely due to a false notion of objectivity and gender paradigms than an inherent invisibility of such data (Conkey and Spector 1984:6; Kehoe 1991). I contend that gender is only inaccessible and women are only invisible if the archaeological record and the study of gender is approached by relying on unquestioned assumptions, static categories, and selective ethnographic analogies, all based within a positivist framework emphasizing testable hypotheses and material correlates of gender. As Dommasnes (1992:3) noted, processual archaeology and its illusion of scientific objectivity, as well as its emphasis on positivism and the verification of hypotheses using rigid test procedures, have a tendency to exclude certain questions and problems, including those of gender, from being considered acceptable and even possible topics for study. By the simple act of assigning gender/sex to material items, archaeologists are classifying using static categories that are ultimately restraining and distorting, and

which can prevent the consideration of dynamics, process, variation and flexibility, and interrelations.

Hence, a more comprehensive approach to studying gender archaeologically is much more complicated and dynamic than gender/sex attribution, that is, simply finding men and women and identifying one set of activities and tools with men and another with women (Conkey and Gero 1991:9, 11; Conkey and Spector 1984:26) through an emphasis on task differentiation and material correlates of gender. Given the nature of the archaeological record, it is unlikely that archaeologists will ever be certain of knowing who performed what tasks (Graham 1991:470). As Stine (1991:499) argued, debates as to whether a man or woman made or used an artifact are proving to be unproductive without the development of theories about gender as an organizing principle in labour. Instead, defining women's and men's roles should be a means rather than an end (Graham 1991:470). The importance lies in envisioning who may have been responsible for specific tasks and how they were executed (Graham 1991:470). In other words, the focus needs to be placed on the dynamic aspects of gender, and processes such as decision-making, interrelations, and implementation of activities, rather than solely on the assigning of gender/sex to static material items and tasks. For example, Gibbs (1987) attempted to identify and interpret gender representation in the archaeological record, but not in the simplistic and rigid manner characteristic of processual studies and task differentiation approaches. Basing her interpretations upon the belief that gender relations actively structure material cultural patterning, Gibbs (1987) attempted to identify interrelated trends and features in several contexts for the prehistory of Zealand, Denmark, in order to recognize manifestations of gender tension and gender negotiation for social power in material culture patterning. Emphasizing dynamics clearly forces archaeologists to make explicit their assumptions concerning the operational aspects of society (Graham 1991:470). A central part of engendering prehistory therefore involves attempting to understand how gender works in all of its dimensions: gender ideology, gender roles, and gender relations (Conkey and Gero 1991:13-14).

Of course, central to this emphasis on dynamics, interrelations, and processes of gender is the substitution of unsupported gender notions, static categories, and a static, biological view of gender with active individuals and a gender that is culturally and contextually constructed. By assuming that gender is an irrelevant fixed aspect of culture, few will ask gender questions; hence, as Spencer-Wood (1991:235) has claimed for historical archaeology, when reconstructing gender/sex roles and relationships, researchers will tend to rely upon the unconscious use of biological reductions,

simplistic dualisms, and stereotypic assumptions derived from both ethnographic accounts of hunter-gatherers and the modern state-level world view. In essence, men, women, and children become passive pawns or irrelevant spectators in prehistoric society, defined by stereotypical views. Consequently, archaeologists are in danger of seriously misinterpreting gender/sex roles and relations. In contrast, by adopting gender as a conceptual and analytical category, that is, by assuming that gender is an active and important variable in social life, archaeologists are able to ask a whole new range of questions, static definitions and categories will be reevaluated, and people will become more visible as active agents of the past.

Clearly there is a need to view women as social and political actors who actively shape their culture, who were and are active agents in the gathering and production of knowledge, who employ strategies to achieve their goals and cope with problems of every day life, who create and use power for making societies and cultures work in positive ways for them, and who are not passively under the control of men (Collier 1974:95; Lamphere 1974:111; Spencer-Wood 1991:239; Stack 1974:114; Williams 1987:31, cited in Spencer-Wood 1991:239). Moreover, it is apparent that in order to examine gender relations operating within prehistoric society, archaeologists must go beyond the confines of contemporary state-level gender conceptions and beyond considering only "domestic" mothering roles for women (Bolen 1991:400, 1992:56); instead, they must consider the possible ways that women were involved in and influenced both the "domestic" and "public" arenas. Of course, this consideration of active individuals and much broader roles applies equally as well for the examination of male roles and activities in prehistoric societies. The gender research that has been undertaken in recent years has demonstrated the importance of considering, not just women, but all people, whether male, female, old, or young, as active individuals and decision-makers, as participants, as forces in creating the archaeological record (Bolen 1991:400, 1992:56), rather than as pawns within an equilibrium system.

In addition, it needs to be stressed that because each sex is inextricably related to the other, the analyses of women cannot be done apart from those of men (Rogers 1978:153, 161; Spencer-Wood 1991:239). Both men and women must be considered as having active roles in making meaning and in contributing to society, because both their goals and strategies are an essential part of the processes of social life (Gottlieb 1990:116). As long as archaeologists continue to accept that the so-called domestic sphere of females can be distinguished from the larger world of men, women will be a mere addition to existing models. This reliance on dualism, dichotomies, and the assumption of two opposed spheres carries with it the suggestion that women must be

understood apart from men (Rosaldo 1980:409). Consequently, a flat, non-illuminating picture of women (and men) will result (Rosaldo 1980:409), as will no doubt, a distorted picture of gender relations in that society. Clearly, the consideration of both men and women in anthropological studies, rather than an overemphasis on one or the other, is a necessary requirement for progressing towards an adequate understanding of the gender relations between men and women (Rogers 1978:153, 161).

In summary, there is a need to move away from restraining static dichotomies and categories, away from portraying culture as a collection of traits, towards a view of culture as a dynamic entity characterized by gender relations that involve active, constantly dynamic interplay and negotiations, and made up of people who are thinking, social actors employing various strategies. By viewing individuals as active, gender studies can re-integrate the agents in prehistory (Maurer 1991:415). As Bolen (1991:404) argued:

Gender conscious research enables visible women to emerge from archaeology, *for a more complete representation of people in prehistoric contexts* and for a more effective access to social relations and organization. (emphasis added)

SUMMARY

Research in cultural anthropology (e.g., Dahlberg, ed. 1981; Ortner and Whitehead, ed. 1981; Reiter, ed. 1975; Rosaldo and Lamphere, ed. 1974; Sanday and Goodenough 1990) has shown that in order to explain adequately cultural variation, one must take aspects of gender into consideration (Kornfeld 1991:1). Specifically in archaeology, recent studies (e.g., Claassen, ed. 1992; Conkey and Spector 1984; Gero 1985; Jochim 1988; Walde and Willows 1991) have indicated that considering gender can have great influence on how the past is interpreted (Kornfeld 1991:1). There is now a growing realization that gender is a fundamental structuring principle, and that gender relations must be treated as contextually and historically specific constructs. As Wylie (1991b:39) remarked, gender is a principle that can no longer be ignored. Consequently, numerous researchers (e.g., Claassen 1992:6; Moore 1988:6) have argued or implied that all research in archaeology and anthropology can and should have a gender component.

However, I do not believe this aim is very realistic or even necessary. What is necessary is a critical reevaluation of underlying assumptions about gender in

archaeological works and interpretations, especially if those assumptions are based on selective analogies and state-level views of male and female roles, tasks, and relations. There is no denying that Plains research is very technological, typological, and mechanistic; it focuses on group adaptation, environment, and technology, much of which is not conducive to gender analysis because of the methodological approach and subject matter (e.g., typing points, establishing chronologies, determining function of tools from use-wear analysis, determining raw material types and sources, and identifying fauna and flora present in archaeological deposits). Hence, much of Plains archaeological research and resulting interpretations about prehistory do not directly and explicitly deal at all with gender. Other research, however, may touch upon gender indirectly, relying upon unquestioned notions about gender to support or flesh out arguments. It is these studies, in which gender plays only a secondary role in analysis, and the underlying premises about gender in these studies that need to be reexamined.

In actuality, the re-appraisal of gender/sex role biases and stereotypes can potentially lead to new interpretations of archaeological data (Eisner 1991:356); thus, a gender perspective can have a valuable impact on archaeological methods and theories as a whole (Eisner 1991:352). And while much work in Plains archaeology would greatly benefit by examination from a gender perspective, especially those interpretations that go beyond simple data description, not all archaeological research can or necessarily should be conducted from a gender perspective. Ungendered constructions are not necessarily bad. Nevertheless, archaeologists who ignore gender in their constructions should be able to demonstrate that aspects of gender are irrelevant to their studies. I believe, however, along with others (e.g., Eisner 1991:352, 356) that gender studies deserve and need to be incorporated more completely into established archaeology, to be integrated with major themes in the discipline, and ultimately become a part of mainstream archaeology (Eisner 1991:356); otherwise, the viewpoints of this perspective will remain on the fringes of the discipline (Eisner 1991:352).

The recent accumulation of data about gender systems has revealed the enormous diversity and importance of gender in society. However, because very little is known about the dynamics of gender, and because of the difficulty in connecting a cultural construct such as gender to material remains, archaeological studies of gender are very difficult and complex. It is highly unlikely that archaeologists will ever be able to reconstruct total gender systems and relations for prehistoric societies. But this problem does not necessarily imply that the archaeological study of gender should be abandoned (see Duke 1991:282 for a similar claim).

Incorporating gender as an active agency contributing to the production of the archaeological record (see Bolen 1991:400) makes possible a more holistic and more humanized picture of the past. At the very least, a gender perspective in archaeological studies will reveal any implicit assumptions about gender, and allow archaeologists critically to examine them, formulate new questions, and pursue different lines of research. In addition, a focus on gender will remind archaeologists of the individual actors who produced the archaeological record, the men, women, and children of prehistory who interacted and made decisions, and who had lives beyond that of hunting and subsistence activities. But the simple addition of gender and the incorporation of women in prehistoric schemes is not adequate, and is not the major stumbling block to dealing with issues of gender in archaeology. Along with this need for a gender perspective is the need to incorporate people in the past, the need to examine biased and unquestioned assumptions about men and women and gender relations, and, lastly, and perhaps most importantly, as Bolen (1992:56) argued, the need for critical and self-reflexive archaeological analysis with various lines of evidence in order to continue the enormous task of reconstructing prehistoric societies.

CHAPTER IV

THE HISTORICAL DEVELOPMENT OF PALEOINDIAN STUDIES

INTRODUCTION

Wilmsen (1965:172) stated 30 years ago that modes of thought at any given time are firmly rooted in the ethos of the time, and are severely circumscribed by the extent of the knowledge at that time. As Trigger (1989a) illustrated in A History Of Archaeological Thought, a close relationship does exist between archaeological interpretation and social context, with social factors helping to shape ideas that have structured archaeological work. However, contrary to the beliefs of some post-processualist archaeologists (e.g., Shanks and Tilley), archaeology is more than a mere projection of contemporary social concerns into the past, or a simple passive reflection or mirror of contemporary society (Trigger 1986:188, 1989a:410). Instead, there exists a dialectical relationship between contemporary society and prehistoric archaeology (Trigger 1986:188).

While values and social context influence how archaeologists interpret the past, archaeological interpretation is also affected to some degree by the current database, the collection methods used, the technological and analytical techniques available, and the dominant theoretical orientations within archaeology and other disciplines (Trigger 1989a:15-18). Moreover, as Trigger (1989a:18-19) noted:

The interpretation of archaeological data is also significantly influenced by established beliefs about what has been learned from the archaeological record. It often happens that specific interpretations of the past are uncritically accommodated to changing general views, rather than carefully scrutinized and assessed, even when these interpretations were formulated in accordance with a general view that has been rejected.

Often certain views of the past can persist and influence archaeological interpretation long after the reasoning that led to their development has been discredited and abandoned (Trigger 1978, cited in Trigger 1989a:19), and this problem appears especially to plague North American Paleoindian studies, particularly with regard to the big game hunting model. In the present chapter, I will outline and analyze the historical development of Paleoindian studies, and in particular this big game hunting theme, focusing primarily on

interpretations and models derived from Plains data, with only occasional reference to eastern Paleoindian studies. Consideration will be given to how the social context, theoretical orientations, and preconceived ideas have influenced Paleoindian interpretations (see Meltzer 1983b, Willey and Sabloff 1980, and Trigger 1989a for syntheses of and more complete references relating to the history of archaeological thought in North America). The following chapter will continue this examination with a critical analysis of why the big game hunting model has remained so dominant, and why there is a need to "deconstruct" it and look at Paleoindian data in alternative ways. Wilmsen (1965) outlined six periods of development of Paleoindian studies in United States, each coinciding with trends in thought concerning the earliest inhabitants of North America. I will follow his basic outline with the addition of several later periods (post-1965).

THE COLONIAL PERIOD (1520-1780)

The Colonial Period (1520-1780) was characterized by speculations concerning the origin and antiquity of American Indians, accounts that were presented primarily by Europeans, most of whom had never been in North America (Wilmsen 1965:172). Archaeology was not yet an established discipline, and collection and description of archaeological data were incidental to other pursuits of explorers, travellers, and missionaries (Willey and Sabloff 1980:12). Essentially there were few collections and little interest in the prehistoric remains of North America before the late eighteenth century (Trigger 1989a:69). At some point during the eighteenth century, mammoth bones found in North America were actually believed to be the bones of giants (MacGowan 1950:142). This kind of speculation was dominant because of the lack of reliable data and the deeply rooted acceptance of theological and biblical explanations as a means of reconstructing the past (Willey and Sabloff 1980:13). Interpretations of biblical literature placed the creation of the world at the year 4,004 B.C., and along with this short chronology was the belief that nothing could ever be learned about times before written records (Trigger 1989a:70).

In addition, Europeans believed nothing significant could be learned about the history of native "savages" (Trigger 1989a:69), and the early predominant views considered them not even human, a rationale for their enslavement and exploitation (Wilmsen 1965:173). Because North American natives did not appear in biblical literature, they had to be explained outside received history. Some believed them to be descendants of the Ten Lost Tribes of Israel, while others saw them as descendants of the

lost world of Atlantis, or descendants of Norsemen or Scythians (see Willey and Sabloff 1980:15-16 and Wilmsen 1965:173 for further details relating to early beliefs concerning the origin of North American natives). As early as 1590, however, Fray José de Acosta, a Jesuit priest, suggested in his Historia Natural y Moral de las Indias that the Americas had been peopled by small wandering bands of hunters from Siberia, who slowly had migrated over a narrow land bridge in the Bering Strait region of the high northern latitudes (Beals 1957). Sixty years later, Thomas Gage also suggested a Bering Strait route (Thompson 1958); however, these views were not generally accepted, and the speculations of Israelite or Norsemen origins remained dominant for another 75 years (Willey and Sabloff 1980:16-17; Wilmsen 1965:173).

PERSPECTIVES, OLD AND NEW (1780-1859)

The major movement westward by explorers and traders during the late 1700s resulted in the first large-scale observation by Europeans of earthworks and mounds in the Ohio and surrounding regions (Wilmsen 1965:174). The belief quickly developed that these mounds could not have been built by the "savages" residing in these areas or their ancestors, but instead must have been erected by a lost civilized race (see Trigger 1989a:104-108 and Willey and Sabloff 1980:20 for detailed discussions of the various theories relating to the Moundbuilders). As Trigger (1989a:105) suggested, Americans no doubt desired a history to rival that of Europe.

Prior to the 1850s, minor attention was given to the Plains primarily because of the "Great American Desert Myth" held by easterners, explorers, and scholars such as Schoolcraft (1851-57), Haven (1856), and even Lewis Henry Morgan (White 1959). The Plains were viewed as an impassable barrier, a bleak, barren desert, unfit for human use except as a region to be crossed as quickly as possible (Wedel 1982a:83-84; Wedel 1982b:136-138). Occupation on the Plains prior to the acquisition of the horse was considered impossible.

After 1780, more formally-educated people took up the problem of the antiquity of humans in North America, and in some cases, observations replaced casual acquaintance with archaeological remains as a basis for discussion (Wilmsen 1965:172). For example, in 1784 Thomas Jefferson (see Koch and Reden 1944:222-227) conducted a deliberate, well-controlled excavation of a small mound on his property in Virginia, and several years later, in 1820, Caleb Atwater published very detailed descriptions and plans of mounds from a survey along the Ohio River (Willey and Sabloff 1980:29-30). However, archaeological interpretations were still dominated by speculation and

characterized by racial myths to justify exploitation of and war with the North American native populations. Native Indians were viewed as savages, primitives that were destined to die out (Trigger 1989a:104), and early anthropological interpretations reaffirmed this stereotype (Trigger 1986:208). In essence, European colonists took over the past of indigenous peoples and manipulated it to show white cultural superiority and to justify white hegemony (Scarre 1990:13).

By the 1830s, Charles Lyell's work in Europe (The Principles of Geology, 1830-1833) and his support of uniformitarian assumptions made scholars realize the need for a longer chronology in Europe. These views began to influence the concept of time depth in the Americas as well (Wilmsen 1965:176). The work of Charles Darwin (On the Origin of Species, 1859), inspired in part by uniformitarian geology and advocating the concept of natural selection, would have even more influence on both European and North American archaeological interpretation.

THE LONG CHRONOLOGY (1859-1890)

Intellectual ideas from Europe had great effects on the rise of American archaeology during the middle and late nineteenth century (Wiley and Sabloff 1980:34). The significance of European discoveries was promoted by Joseph Henry of the Smithsonian Institution, who had numerous descriptions and accounts of European work published for the American readership during the 1860s (Meltzer 1983b:5). This work naturally awakened interest in North American remains and ancient inhabitants. The discovery in Europe that human antiquity reached far back into the Pleistocene, along with concepts of geologic sequence and biological and cultural succession, stimulated a search for Paleolithic populations in North America of antiquity comparable to that being found in Europe (Meltzer 1991:15; Wilmsen 1965:176).

There was a realization, however, that the North American archaeological and geologic record was different from that of Europe. There were no exposures of deeply stratified alluvial valleys and thus no clear stratigraphic sequence, no caves with human artifacts and Pleistocene fauna, and few old deposits containing bone in North America (Meltzer 1983b:1; Wilmsen 1965:176). Consequently, because of these inadequacies and a lack of knowledge concerning Quaternary geology in North America, scholars turned to the idea that similarity in form between European and American implements indicated the same age (Meltzer 1983b:1). In essence, typological analogues were used to define an American Paleolithic age; that is to say, the older the material, the more primitive the

appearance (Meltzer 1983b:7). European finds became the standard against which all American data were measured (Wissler 1916:234).

In 1876, Charles C. Abbott, during a study of the Trenton Gravels in New Jersey, discovered argillite tools in strata that he believed dated to glacial times (Abbott 1877). He attributed the tools to a North American Paleolithic culture even though geologic studies and dating at the site were inconclusive. His conclusions were based solely on morphological analogues with European Paleolithic artifacts (Meltzer 1983b:8).

Over the next several decades following the Trenton Gravel finds, numerous other "Paleolithic tools" were reported across North America. Every new find that looked crude or early was similar to European Paleolithic tools, or was found in a supposed ancient geologic association was assigned to the Pleistocene age and declared as proof for the great antiquity of humans in the New World (Meltzer 1991:15; Willey and Sabloff 1980:49). As Meltzer (1983b:10) suggested, the similarity between European and American "paleoliths" essentially confirmed previously held beliefs of the psychic unity of humankind, and the assumption that humans were of considerable antiquity in North America.

By the end of the 1880s, the American Paleolithic was almost universally accepted by archaeologists and geologists (Meltzer 1991:15). Abbott and his colleagues were all convinced that there was enough evidence to support the belief that glacial-age populations had been present in North America (Meltzer 1983b:10). The Americas were characterized by a long chronology, one that could rival European prehistory.

The view still persisted, however, that native populations were fossilized entities, incapable of progress, unchanging and thus doomed to extinction (Trigger 1986:194, 1989a:129). These ideas were reinforced by the context of evolutionary anthropology in which American archaeology began to develop in the nineteenth century (Trigger 1989a:129; see also discussion in Meltzer 1983b:39-40). The views of Darwin and John Lubbock were especially influential. Lubbock incorporated Darwinian views and prehistoric archaeology in his book Pre-historic Times (1865), advocating a unilineal evolutionary view that saw native populations as biologically inferior to western Euro-American societies (see Trigger 1989a:114-118). In essence, Lubbock's ideas provided Americans with a "scientific" Darwinian explanation for the biological inferiority that had been attributed to the natives since the 1700s (Trigger 1989a:119). Moreover, it provided a justification for their exploitation and colonization. In other words, native populations were disappearing not because of European exploitation, but because of their failure to evolve, and their inability to survive in civilization (Trigger 1989b:20).

REEXAMINATION (1890-1925)

In the early 1890s, W. H. Holmes, an archaeologist with the Bureau of American Ethnology, basing his view on his work at the Piney Branch quarry (Holmes 1890), argued that artifact form had no chronological significance at all; that is, an artifact might appear crude because it was unfinished and not necessarily because it was ancient (Holmes 1892). Holmes therefore believed that the age of an artifact had to be determined independently by geological context and not simply by form (Holmes 1892; Meltzer 1991:16). He further argued that it was misleading to assume that implements with a crude appearance were proof of a Paleolithic age in North America (Holmes 1892). After examining numerous "Paleolithic" sites and quarries in eastern North America, Holmes (1892) concluded that these so-called paleolith artifacts were more likely to be refuse and unfinished blanks made by more recent natives, their crude appearance resulting from their rejection early in the manufacturing process rather than from their so-called great age (Meltzer 1983b:15-16). Consequently, by the 1890s, the position that similar form implied similar age came under question, and the long chronology that Abbott and his colleagues had advocated for so long suffered a major setback. The lack of real empirical evidence further weakened the case for North American Pleistocene cultures (Wilmsen 1965:178).

For the next several years Holmes, along with Aleš Hrdlička, became a major force in discounting evidence for a long chronology of humans in the Americas. Hrdlička, a Czechoslovakian physical anthropologist who had come to the United States National Museum in 1903, used the principle of morphological dating to date the antiquity of skeletal remains (Meltzer 1983b:29-30). He believed that any skeletal remains of the Pleistocene age had to display primitive characteristics; if they resembled historic native American skeletons, then he considered them of recent age. Hrdlička, as Meltzer (1983b:33, 1991:24) noted, had rejected geologic evidence as dating criteria in favour of bone morphology. In the following years Hrdlička studied numerous "Pleistocene" cases, and, with relentless criticisms and scathing attacks, he discounted them all as modern or recent in age (Meltzer 1983b:29-30; Willey and Sabloff 1980:49-50).

Throughout the early 1900s, Holmes and Hrdlička privately sought to block publications and prevent new authorities from examining new claims (Meltzer 1991:24). They both became extremely personal in some of their attacks, and this kind of criticism essentially frightened researchers away from the subject of Pleistocene populations in the Americas (Meltzer 1991:24). In addition, the Bureau of American Ethnology and the United States Geologic Society, both centred in Washington, D.C., adopted a skeptical

attitude towards claims of evidence of human antiquity to rival European Paleolithic assemblages (Trigger 1989a:126). Both organizations systematically attempted to attack those claims and the people who believed in the Pleistocene antiquity of humans in America (see Meltzer 1983a, 1983b, and 1991 for more detailed accounts of the role both the Bureau of American Ethnology and United States Geologic Society played in the controversy over the antiquity of humans). Meltzer (1983a, 1983b) particularly illustrated how politics at these institutions fed the controversy. Major proponents of "early man" in North America (e.g., C. C. Abbott, F. W. Putnam, G. F. Wright) were easterners and anxious to place their work in the context of European scholarship and gain recognition from Europeans (Meltzer 1983b:9), whereas many of the critics were born and educated in the Midwest of North America and disdained European science (Meltzer 1991:25), wanting to demonstrate the uniqueness of the North American archaeological record (Meltzer 1983b:24-25).

As K. Bryan (1937:139) noted, during this period archaeologists had become expert in discrediting finds purporting to show the existence of ancient humans in the New World. Opinion had crystallized into a dogma to the effect that human populations were considered to be recent immigrants into North America (Bryan 1937:139). With the subject of Pleistocene populations in America virtually taboo, focus was shifted to more recent populations and periods (Meltzer 1991:24). This shift resulted in the impression of little time depth for American prehistory (Willey and Sabloff 1980:50). However, a few arguments for Pleistocene occupations occasionally surfaced during this time. For example, in 1916, Sellards (1917:21-24) assigned a Pleistocene age to human skeletons associated with extinct Pleistocene fauna at Vero, Florida, even though Hrdlička discounted the geologic and paleontological evidence and concluded that the skeletons were of recent age (Meltzer 1983b:30-33).

Specifically with regard to the Plains, the long-held concept that there was no pre-horse Plains culture was kept alive by scholars such as Wissler and Sterns (see Wedel 1982a:89-93) in the early 1900s, with the belief that there could have been no "buffalo culture" without the presence of the horse. Human migration into the Plains was believed to have been only recent.

Obviously then, by the 1910s one of the most serious shortcomings of American archaeology was a lack of chronological control (Trigger 1989a:187). After 1910, a cultural-historical perspective was adopted in American archaeology, and the focus shifted to regional and cultural chronologies, and the typologies of artifacts and cultures (Trigger 1989a:195). But still the stereotypical views of "primitive" natives and the belief in a relatively changeless and static prehistory persisted, and so a "flat view" of native

history resulted. Prehistoric times were not seen as qualitatively distinct from the ethnographic present, and thus archaeology became dependent upon ethnography (Trigger 1989a:125). Especially in Plains archaeology, there was frequent use of the direct historical approach (Wedel 1982a:99). Along with this "flat view" or short chronology of native history was the tendency to attribute any change identified in the archaeological record to migrations or diffusion (Trigger 1989a:195). As well, racism was explicit in the writings of virtually all the major anthropologists of the first decades of the twentieth century, simply because it was the generally accepted view (Lewin 1987:307). Two factors, however, were slowly changing these ideas and encouraging the view that natives were capable of change: Franz Boas' opposition to racism and his support of cultural relativism (Trigger 1989a:187), and the increasing knowledge being gained from studies of stratigraphic sequences that indicated that change had indeed occurred in the past.

THE FOLSOM DISCOVERY: THE TURNING POINT (1925-1950)

One of the first major events regenerating interest in the possibility of Pleistocene occupations in the Americas occurred in 1925 when Harold Cook (1925) published a preliminary report on the Lone Wolf Creek bison kill site (Wilmsen 1965:180-181). Located in Texas, this site had produced extinct bison remains associated with projectile points. Cook (1925) claimed that the associated fossil bison and other fauna indicated a Pleistocene age for the undisturbed deposits, that the bison and artifacts were contemporaneous, and thus that the first definite evidence for Pleistocene populations in the Americas had at last been found. He also provided an interpretation for the deposit, stating that it was probable that "the bison had been shot and carried these flint points with him to the place where he finally died and was entombed" (Cook 1925:460).

J. D. Figgins, a paleontologist and the director of the Colorado Museum of Natural History, was one of the first to recognize the significance of these finds (Wilmsen 1965:181). Early in 1926, in the hopes of finding similar material to that found at Lone Wolf Creek, Figgins and Cook began to check a site near Folsom, New Mexico, which had been reported to Figgins by local residents (Figgins 1927:232; Meltzer 1983b:35; Roberts 1937:153-155). They were successful and recovered two points in immediate association with late Pleistocene bison remains (Figgins 1927:232); however, this discovery was skeptically received, many arguing that the points were intrusive (Roberts 1937:153-155). The following summer (1927) when another point was found, it was left in situ while invitations were sent to various eastern institutions to send representatives to

examine the discovery (Meltzer 1983b:35; Roberts 1937:153-155). Frank Roberts, an archaeologist with the Bureau of American Ethnology, was sent to Folsom. After a few days of examining the site, he concluded that the projectile points and the bison bone had entered the formation at the same time (Meltzer 1983b:35). A. V. Kidder, who spent a day with Roberts at the site, and Barnum Brown, who represented the American Museum of Natural History, also supported Roberts' conclusion after examining the site (Roberts 1937:153-155).

The discovery was reported at the annual meeting of the American Anthropological Association; however, as Roberts (1937:155) noted, most anthropologists continued to doubt its validity. In 1928, Barnum Brown headed more detailed excavations of the site in conjunction with the American Museum of Natural History and the Colorado Museum. With the recovery of additional points associated with bison, there was finally a general consensus among archaeologists that the finds indicated that humans had been present in the American Southwest much earlier than originally believed (Roberts 1937:155). Most of the critics of previous years now endorsed the Folsom materials (Roberts 1937:155). As for Holmes and Hrdlička, they did not dispute Roberts' conclusion (Meltzer 1991:25), and never again attacked claims for "early man" (Meltzer 1983b:37). As Meltzer (1983b:37) pointed out, indirectly it was Holmes' and Hrdlička's insistence on scientific caution and authentic evidence that eventually led to the acceptance of the Folsom finds.

Hence, the Folsom site was the first excavated site that had provided unequivocal evidence for the association of humans and extinct animals; thereby, the site suggested a much greater antiquity for human populations in North America than previously believed (Sellards 1952:147; Wormington 1949:19). The belief was that "the Folsom point won the battle for early man in the Americas because *it proved* that he had hunted extinct bison, camels, mammoths, peccaries, and horses " (MacGowan 1950:115; emphasis added).

The impact of the evidence recovered at the Folsom site ultimately stimulated interest in "Early Man" studies and searches for comparable finds in North America (Jennings 1974:84; Sellards 1952:147). The Folsom discovery immediately resulted in numerous other such finds of human artifacts in indisputable association with extinct fauna. The first conclusive evidence of humans coexisting with and apparently hunting mammoth came a few years after Folsom, in 1932, at Dent, Colorado, where a fluted projectile point was found in association with mammoth remains (Figgins 1933; Haynes 1966:105). Subsequent excavations by the Denver Museum revealed an additional fluted point along with the bones of eleven immature and one adult mammoth (Sellards

1952:31). Not long after, in the same year, projectile points of a similar type (fluted) were discovered associated with mammoth bones near Clovis, New Mexico, at Blackwater Draw Locality No. 1 (Cotter 1937; Hester 1972; Howard 1935). The earliest excavations (1933-37) recovered fluted points associated not only with mammoth but also horse, bison, turtle, and various small mammals (Roberts 1937:155-157; Sellards 1952:29).

In the following years, numerous other such discoveries of extinct animals and associated artifacts were made at various Plains localities, including the Miami locality in Texas in 1934 (Howard 1935:148; Sellards 1952:18-29), and the Lindenmeier site in Colorado (Roberts 1935, 1936, 1937:158-160; Wilmsen 1974; Wilmsen and Roberts 1978). Based on these discoveries, Howard (1935:149-151) argued that there was no longer any question that humans had been contemporaneous in America with types of animals now extinct, and that these occupations had been definitely of late glacial times. This view reflected the one held by most archaeologists at the time.

Additional discoveries of bison kill sites such as Scottsbluff (Barbour and Schultz 1932) and Lipscomb (Schultz 1943), and mammoth kill sites such as Naco and Lehner in Arizona in the 1950s (Haury 1953; Haury et al. 1959) further added to the increasing amount of evidence indicating a late Pleistocene human occupation in North America. Moreover, with these discoveries, Plains archaeologists were finally able to lay to rest Lewis Henry Morgan's notion of 1859 that the prairie was made inhabitable to native populations only after they had received the horse and rifle (Wedel 1982a:105). As Wedel (1982a:96) noted, "from these beginnings, the search for PaleoIndian remains in the plains has become a major focus of scientific interest in subsequent years...."

Typology and Chronology (1925-1950)

After the 1930s, with the Folsom and other late Pleistocene finds, there was a shift towards an emphasis on cultural taxonomy, typology, artifact classification, and Paleoindian studies in the Southern Plains (Wedel 1982a:102), and new efforts were placed into a finer scale analysis of chronology (Meltzer 1983b:40). Early on, the focus shifted to typology and classification of "Early Man" projectile points, while other artifact types were seriously neglected (Wilmsen 1965:183). Most likely this obsession with projectile point typology in Paleoindian studies was related to the overall interest in seriation, chronology, and historical taxonomies which characterized all North American archaeology from the 1920s onward. The major focus in archaeology at that time was directed towards stratigraphic excavations, classifications to plot culture forms in time and

space, and culture historical syntheses of areas and regions (Willey and Sabloff 1980:83), including such work as the Midwestern Taxonomic System (McKern 1939) and the Pecos Classification based on Kidder's work (Kidder 1924, 1927).

Renaud (1932) was the first to classify the early points into a simple two-fold division of Folsom points (those points with fluting) and Yuma points (those without fluting). Following in 1935, Howard (1935) added yet another classification to the two-fold system, "Folsom-like" points, which included fluted points larger and thicker than Folsom points (see Howard 1935:149). In providing detailed descriptions of these three types of early points, which had been exclusively found in association with extinct animal remains, Howard (1935:121) noted that Yuma and Folsom points, while having similar distributions, were not as widely distributed over the continent as were the Folsom-like points (later called Clovis points).

By 1940, human occupation of the New World during the Pleistocene was generally accepted, although dating and correlation with glacial events was still problematic (Wilmsen 1965:184). For example, in discussing the geology of Folsom deposits in New Mexico and Colorado, Bryan (1937:140) noted the existence of a problem with determining the geologic age of the Folsom culture because of the lack of established and general chronology of Pleistocene and post-Pleistocene time in western North America. Only approximate estimates of 15,000-10,000 years B.P. were available (Willey and Sabloff 1980:121), and these dates were based primarily on geologic evidence. The work of Ernst Antevs was of particular importance during this time, as he was one of the first prior to the advent of radiocarbon dating to provide actual estimates of ages for various events. For example, based on geologic evidence, Antevs dated the Naco mammoth kill site in Arizona at 11,000-10,000 years B.P. (Haury 1953), and the nearby Lehner mammoth kill site at 13,000 years B.P. (Haury et al. 1959).

The term "Paleo-Indian" was first introduced in 1940 by Frank Roberts (1940) in the title of his cumulative syntheses of work dealing with "early man" studies in America. The term was not defined and appeared only once in the text, but Wilmsen (1974:10) argued that it was clear that Roberts was referring to "hunting peoples represented by sites associated with extinct animals and presumed to date to the final portions of the Pleistocene."

By the 1940s, with discoveries of fluted points throughout the Plains and slopes of the Rocky Mountains, such serious confusion had developed in Paleoindian projectile point nomenclature and classification that a conference was held in Santa Fe (1941) to discuss terminology. The Folsom-like classification was dropped and replaced with Clovis Fluted (representing all large fluted Paleoindian points associated with mammoth

kills) and Ohio Fluted (representing eastern fluted Paleoindian points); however, as Wilmsen (1965:183) noted, no formal results were ever published. The confusion and preoccupation with Paleoindian point typology, chronology, and distribution continued, and, as Haury (1950:521, cited in Wilmsen 1965:183) noted in 1950, the makers of the points had essentially been forgotten.

Interpretations of Paleoindian Lifeways (1925-1950)

The evidence recovered from the 1928 Folsom site excavations, including 23 partially disarticulated bison skeletons associated with Folsom points, was interpreted by Barnum Brown as representing a location where Folsom hunters had surrounded, killed, and subsequently butchered the bison (see Bryan 1937:141). In one of the earliest studies dealing with the evidence for "early man" in North America, Howard (1935) focused on two occurrences in New Mexico (Burnet Cave and Blackwater Draw) that had established associations of extinct animals and stone artifacts. Already the belief that these early populations had been a hunting people (see Howard 1935:151) was present in interpretations.

We can only say that the earliest evidence of man in America shows that the stone artifacts he made were associated with the larger mammals, particularly the bison, so that with this to guide us we may not be far wrong in saying that *the first immigrants were hunters who followed herds of bison and other animals into Alaska...*(Howard 1935:128; emphasis added)

A few years later, Frank Roberts (1937:160), in discussing the "Folsom Problem" and the characterization of "Folsom Man" noted that despite the lack of human remains and shelters,

...it seems obvious that he was a typical hunter depending entirely upon game--mainly bison but occasionally the mammoth and a stray camel--for his maintenance and sustenance. He no doubt supplemented his preponderant meat diet with wild seeds and "greens" but did not cultivate his own vegetal food.

A decade later, opinions had not changed drastically, as evidenced in Wormington (1949). She concluded that the large fluted points (i.e., Clovis points) had been especially made for hunting large animals (mammoth). Taking her argument even

further, she proposed that the makers of all fluted points on the High Plains had been dependent upon bison and mammoth (Wormington 1949:35) .

As early as the 1930s, the idea was proposed that humans had participated in the "great drama" of the extinction of Pleistocene mammalian fauna (see Sellards 1937:210). Colbert (1937), however, questioned how small bands of "primitive men," even though "savage and aggressive," could result in the extinction of mammals so numerous as Pleistocene horses and mammoths. As well, it was recognized early on that these early cultures associated with extinct fauna had existed during a period when climatic conditions had been very much different from those of today, a time when glaciers had been more extensive and the climate had been cooler and wetter (e.g., Antevs 1937; Bryan 1937:152; Gladwin 1937:135; Howard 1935:61).

Discussion

In summary, the period immediately following the Folsom discovery was characterized by generalized interpretations of the Paleoindian archaeological evidence. Archaeologists were quick to conclude that Pleistocene populations had been primarily hunters of large animals. The reasons for this unquestioning adoption of a hunting interpretation are numerous. First, Paleoindian archaeology was a new and young study. Focus immediately shifted to projectile point typology and chronology, the concern prevalent in most of North American archaeology at that time. There was no need to question the hunting conclusion because it was believed that archaeological sites such as Folsom, Clovis, and Dent were providing indisputable proof that humans hunted extinct fauna. It is obvious that early on, archaeologists became caught in a circular, tautological argument: there was no need to question the hunting interpretation or examine exactly what the evidence for this was because the association of points and bones was believed to provide sufficient and adequate proof.

Archaeologists were exuberant over the fact that overwhelming proof had finally been discovered to support the argument for Pleistocene occupations in North America that for so long had been adamantly denied at every turn by the Bureau of American Ethnology. Moreover, archaeologists were discovering not just one or two sites to support this claim, but numerous sites, and the majority were "kill" sites. At long last North Americans had discovered a history that possibly rivaled that of the Old World: the spectacular image of the mighty Pleistocene hunter taking down large Pleistocene mammals.

With the relatively small sample of Paleoindian sites being primarily kill sites from the North American Plains and Southwest, with the interest in typology, and the excitement over finding a history comparable to that of the Old World and one to refute the claim of a short chronology for North America, it is not surprising that archaeologists interpreted these early finds as the remains left behind by a big game hunting population. Essentially the focus on typology and chronology was considered the primary goal of archaeology at this time, and all other concerns were considered secondary or not of vital importance. There was no need to explain or question the association of points and animal bones. It was self-explanatory: the results of hunting. Paleoindian remains were adequately explained if they could be placed in appropriate classes; however, as Wilmsen (1974:44) noted, placing artifacts in classes was only a form of description and nothing more.

THE RADIOCARBON REVOLUTION (1950-1962)

The development of radiocarbon dating in the early 1950s had a major influence on the ordering, lengthening, and shortening in some cases, of cultural sequences throughout the Americas (Willey and Sabloff 1980:156). Archaeologists were at last freed from an overwhelming concern with establishing chronology. Radiocarbon dating allowed for correlation with glacial-pluvial remains and sequences as well as more accurate dates, chronologies, and correlations between Paleoindian assemblages (Haynes 1969:709; Wilmsen 1965:185). In essence, the result was a reconsideration of the nature of cultural development in North America (Wilmsen 1965:186).

There was also a growing awareness that the cultural-historical approach was inadequate for understanding how prehistoric cultures functioned and changed. Consequently, archaeologists were beginning to turn towards more functional and contextual approaches for understanding human behaviour (Trigger 1989a:244; Willey and Sabloff 1980:130-180). The major players in advocating a functional interpretation in archaeology included Walter Taylor and Julian Steward. In A Study of Archaeology, Taylor (1948) severely criticized the state of American archaeology and its preoccupation with chronology, proposing his "conjunctive approach," which focused on sites, features, relationships, and contexts. Also gaining prominence at this time was a concern with culture and the environment. The principal figure in this new environment-evolutionary trend was Julian Steward (see Willey and Sabloff 1980:151), who supported the idea that ecological factors were important in shaping prehistoric systems. This ecological view subsequently led to the development of settlement archaeology

initiated by Gordon Willey's (1953) study of settlement patterns and their relationship to prehistoric social organization in the Virú Valley of Peru.

Paleoindian Studies (1950-1962): An Introduction

More specifically for Paleoindian studies at this time, several syntheses of Paleoindian and North American prehistory appeared (Sellards 1952; Wormington 1957). After Frank Roberts (1940) introduced the term "Paleo-Indian" in 1940, it was immediately adopted by North American archaeologists; however, it was not until Sellards' Early Man in America that the term was defined explicitly as those occurrences of human or human relics of such antiquity as to be associated with species of animals or plants now extinct (Sellards 1952:5, 10). As well, Sellards (1952:17) introduced the term "Llano complex" to refer to those sites in which the Clovis artifact assemblage, characterized by the distinct fluted Clovis point, was found in association with extinct Pleistocene animals on the southern High Plains. The term had been derived from the "Llano Estacado," a large plateau making up the southern High Plains in western Texas and eastern New Mexico where several early Paleoindian sites, including Blackwater Draw Locality No. 1, had earlier been discovered.

Big Game Hunting Interpretations

These syntheses of North American prehistory (Sellards 1952; Wormington 1957), as well as other literature dealing with "early man" finds (Haury 1953; Haury et al. 1959), revealed that the interpretation that promoted the idea of fluted point makers or "Paleo-Indians" being dependent upon mammoth and bison was firmly entrenched in North American prehistory at this time. There was a continuance of the belief from the 1930s and 1940s that the association of fluted projectile points (assumed to be weapons) and animal bones provided indisputable proof for hunting by humans.

We know definitely that American men once killed, skinned, and ate animals that are now extinct, for we find men's weapons and a few of their bones mingled with the fossils of extinct mammals. (MacGowan 1950:224)

Sellards (1952:113), in his detailed examination of "early man" in America, even suggested that it was reasonably certain that the "Paleo-Indian" of 10,000 years ago had lived and hunted on the Plains much the same as ethnographically-known Plains bison

hunters, except that "early men" had no dogs, and hence no travois, and no bow and arrow, but instead had hunted with a spear and atlatl.

Despite Sellards' proposing that a great variety of plant as well as animal species had been exploited by prehistoric groups of the Llano complex (Sellards 1952:17), he still argued that where animals had been plentiful, meat had become an important part of the diet, and that stone projectile points from Blackwater Draw Locality No. 1 had been clearly those of a hunting people (Sellards 1952:17, 42). Moreover, he stated that evidence from several Folsom sites including Lindenmeier, Folsom, Lubbock, Blackwater No. 1, and Lipscomb unmistakably provided proof that Folsom projectile points had been used in the hunting of bison (Sellards 1952:60). However, he also cautioned that Folsom points may not have been exclusively used for bison hunting, but may have been used on other game for which a point of their size was suitable (Sellards 1952:60).

Sellards (1952:23-26) was the first to attempt to model human-mammoth interaction in an explanatory and processual manner (Saunders 1980:88), specifically to account for the remains discovered at the Miami locality in Texas. Excavations in 1937 at this extinct waterhole had revealed the remains of five mammoth associated with three points and a scraper (Sellards 1952:18-26). Sellards (1952) argued that starvation, disease, or drought had caused the death of the mammoths, while Clovis peoples had salvaged what they could, and in the process, lost some artifacts.

In spite of Sellards' (1952:17) suggestion that a great variety of plants (i.e., seeds, bulbs, fruits, and nuts) and animal species had likely been used where available by these early Paleoindian populations, and despite his "scavenging" explanation for the Miami remains, interpretations continued to be dominated with the idea of active, spectacular big game hunting (see Appendix A: Haury 1953; Haury et al. 1959; Irwin et al. 1962). For example, Haury et al. (1959:28) went so far as to propose an age-selective cull model for the Lehner site where Llano hunters had culled the younger mammoths from the herd because they had been easily isolated and killed, and because they proved tastier. Moreover, despite the lack of projectile points (the big game hunters' "weapon") at the Union Pacific mammoth site in Wyoming, Irwin et al. (1962:836) suggested that the mammoth had been driven into a bog, had become mired in the muck, and had been subsequently slaughtered and butchered by Paleoindian hunters, who used, perhaps, large boulders to stone the animal to death.

The popular view during the mid-1950s with regard to the earliest inhabitants of the Americas was revealed in an article in National Geographic (Henry 1955). It, too, reflected this active big game hunting interpretation for Paleoindian remains. The first

migrants had come into North America stalking mammoth and other large Pleistocene game around 20,000 years B.P. (Henry 1955:782). The weapons left among mammoth bones proved that people had hunted them, probably by trapping them in bogs and sloughs (Henry 1955:797). Moreover, it was believed that Clovis-Folsom "man" must have lived a "hand to mouth" existence, continually moving, with little leisure time (Henry 1955:793), and with "a high degree of intelligence and courage to put his feeble body against the mammoth and bison and 'make a living' out of them" (Henry 1955:797). In yet another National Geographic article, Irwin et al. (1962) viewed late Pleistocene humans as a little more rugged than historic American Indians, linked together by kinship ties in small bands, facing an uncertain food supply. With only stone, bone, and wooden tools, these early groups were limited in their hunting; thus a mammoth kill was seen as a windfall, "a veritable mountain of meat," the difference between "mere survival and plenty for weeks, perhaps even months" (Irwin et al. 1962:836).

Chronology of Early Paleoindian Cultures and their Distributions

During the 1950s, the popular belief, as Haynes (1966:105) noted, was that two separate groups of hunters existed in western North America during the late Pleistocene: the earlier Clovis mammoth hunters (Sellards' Llano complex) and the later Folsom bison hunters. Already by 1952 it was noted that the Llano culture was not only older than Folsom based on stratigraphic evidence, but also more widely distributed than Folsom, occurring over much of North America (Sellards 1952:149). Sellards (1952:106) explained this distribution by suggesting that the projectile point developed by "Folsom man" had been specially designed for bison hunting, and thus was not likely to be found in abundance much beyond the range of bison herds of the great interior plains. Moreover, the Clovis point, which seemed to have been used primarily in elephant hunting, would reasonably be expected to be found throughout most of the continent, since the range of the elephant had been continent-wide at one point (Sellards 1952:106).

Issue of the Cochise Culture

The issue of the relationship of "Llano man the hunter" to "Cochise man the collector" arose in the 1950s with the discovery of assemblages (labelled as the Cochise culture) in southeastern Arizona which indicated a gathering-based economy, but one associated with late Pleistocene mammoth, horse, and bison remains, especially in earlier assemblages. Both Sellards (1952:79) and Wormington (1949:88) argued that the

archaeological evidence indicated that the Cochise complex had been concerned primarily with food gathering of wild seeds, nuts, and roots which constituted the major part of their diet, while hunting had been practised but only to a limited extent. An archaeology seminar in 1955 to deal with the issue concluded that the Cochise Desert culture, although the same age as the Llano complex, was sufficiently distinct from that of the big game hunter culture to testify not only to a different environmental adaptation but to a different outlook as well (Haury et al. 1959:26). Haury et al. (1959), however, adamantly supported the view that the Llano big game hunting stage had been antecedent to the Cochise collecting stage because of dating and tool assemblages (see more recent studies by Waters 1986a, 1986b, and Woosley and Waters 1990 that have reexamined sites previously designated as belonging to the Sulphur Spring stage of the Cochise culture and have demonstrated that Haury was correct. The Sulphur Spring stage is now placed between 6,050 and 8,050 B.C., perhaps as early as 8,450 B.C., which indicates that it was not contemporaneous with, but post-dated Clovis).

Discussion

In summary, Paleoindian archaeology in the 1950s was still a relatively young study. New finds, primarily from the western part of the continent, appeared to support the earlier interpretations of a big game hunting lifestyle. With the basis for chronology and typology of Paleoindian complexes established, questions and research could now be shifted to other topics such as lifeways. This interest in lifeways, however, naturally focused on the aspect of big game hunting, which supposedly was the characteristic lifestyle of these Paleoindian groups. Questions revolved primarily around the methods and techniques of hunting in attempts to explain the remains found at Paleoindian localities. Interpretations were relatively generalized, being based on ethnographic comparisons and the belief in a harsh life dependent on big game windfalls. Interest tended to be channeled towards explaining individual sites rather than examining a broader overview of Paleoindian culture and relationships (with the exception of the Cochise issue). Despite this interest in lifeways (i.e., big game hunting), there still remained a dominant research focus on chronology and typology of Paleoindian projectile points, as is evident throughout the entire history of Paleoindian studies.

THE NEW ARCHAEOLOGY: PROCESSUAL STUDIES (1962-1980s)

The change to a concern with function and how cultures changed and operated marked the beginning of a processual study of prehistoric cultures in archaeology, replacing the cultural-historical approach of the early 1900s and resulting in a renewal of ties with anthropology (Trigger 1989a:288). Lewis Binford popularized these new concerns (see Binford 1962), and was basically responsible for much of the early development and syntheses of this "New Archaeology," as it would eventually become known (see Binford 1965, 1967, ed. 1977). Characterized by a revival of evolutionary thinking, the New Archaeology was influenced heavily by the work of Leslie White and Julian Steward, the introduction of systems theory, the use of deductive reasoning and explicit hypotheses-testing, a positivist approach, and the goal to formulate laws of cultural dynamics. In addition, New Archaeology advocated the ethnoarchaeological approach for establishing correlations between behaviour and material items in order to infer behaviour from the archaeological record. The application of these approaches aimed primarily to eliminate the subjective element within archaeological research, and establish a basis for the objective scientific interpretation of archaeological data (Trigger 1989a:301).

Since culture was viewed as the human organism's extrasomatic means of adaptation (Binford 1962:218), that is, as part of a homeostatic equilibrium system, factors that brought change to the system were essentially seen as external (Binford 1983:221). Ecological explanations of change were dominant (Trigger 1989a:305), with the relationship between technology and environment considered key factors in determining cultural systems and human behaviour (Trigger 1989a:302). Although the New Archaeologists and Binford (1962:219) supported the belief that all aspects of cultural systems were reflected in the archaeological record and thus if correctly interpreted could provide a complete and undistorted picture of extinct cultures (Trigger 1989a:357-358), the majority of New Archaeology studies tended to focus on subsistence patterns, trade, and social organization.

The State of Paleoindian Studies

By the mid-1960s, an earlier Clovis and later Folsom horizon had been documented for the North American High Plains and Southwest (Willey and Sabloff 1980:160-161). It was apparent that Clovis and Clovis-like assemblages had a more widespread distribution than Folsom, and the general interpretation was that early hunters of the late Pleistocene had spread over most of North America with Clovis-like

technology. Then, later point forms evolved from Clovis into a number of separate regional point styles including Folsom, Plainview, Midland, Yuma, and Eden in the west, and Suwannee and Dalton in the eastern area of North America (Willey and Sabloff 1980:160-161).

An Environmental-Ecological Focus

The new-found focus on cultural-ecological, evolutionary, and functional approaches that began in the 1940-1950s, and culminated in the development of the New Archaeology, began to influence Paleoindian studies in North America (see Wilmsen 1965:186). Several studies practising a cultural ecological approach appeared during the 1960s and 1970s, dealing with the effects of changes of culture and the environment on one another. Examples included Wendorf's (1961) paleoecological study of the Llano Estacado, Paul S. Martin's (1963) paleoecological study of Arizona and his examination (Martin 1958) of Pleistocene extinctions and human involvement, Hester's (1975) study of the paleoarchaeology of the Llano Estacado, and Wendorf and Hester's (1962) reconstruction of the nature of the Great Plains environment through pollen and invertebrate studies, in an attempt to determine how early humans may have used this environment. Following an examination of Paleoindian sites on the Llano Estacado, Wendorf and Hester (1962:159, 169) concluded that the "Paleo-Indian cultural tradition" practised throughout the Great Plains from Llano, Folsom, to Parallel Flaked times, had adapted to the use of this environment primarily through big game hunting. At this time there was a clear acknowledgment that late Pleistocene environments on the Plains had been very different from that of today (e.g., Harris 1977; Martin 1958; Wendorf and Hester 1962:164).

This environmental/ecological interest was apparent in Plains archaeology by the shift in focus in the 1970s to an interdisciplinary approach calling upon such disciplines as zoology, ethnobotany, geology, and climatology in order to reconstruct environmental relationships of humans in the Plains at the archaeological level (see Wedel 1982b:143). Moreover, because so few traces remained of Paleoindian hunters, Willey (1966:44) noted the importance of and reliance on the study of past environments especially for reconstructing Paleoindian culture history. He argued that environments provided a better image of ancient cultures and societies "as actual functioning entities rather than categories of chipped-stone types" (Willey 1966:44).

Lifeways Interpretations

In 1962, Mason (1962:229) expressed the belief held by most North American archaeologists at that time, namely, that the big game hunting practised by Paleoindian traditions represented a single lifeway characterized by very successful, full-time exploitation of big game animals, since no clear evidence had been recovered to indicate that seed or other wild vegetation had been collected.

...probably the most singularly potent factor to which man had to adapt was *the great reservoir of large herbivores on which we know the food-quest relied* and which must have answered the needs for clothing as well. With the tapping of this vast energy pool man fastened himself to a vehicle for cultural specialization that cut across other ecological barriers. (Mason 1962:243; emphasis added)

The few archaeological remains dating to this time suggested to archaeologists (e.g., Jennings 1974:90-91, 1978) that only large animals were taken, and all technology appeared to be directed towards the hunt. Essentially this interpretation was a continuation of the beliefs prominent in the 1950s.

Willey (1966:26-77) provided a summary of the prevailing view during the early and mid-1960s of "The Big-Game Hunting Tradition," encompassing those early cultural complexes adapted to grassland environment of the late Pleistocene, and characterized by distinctive lanceolate projectile point types (i.e., Clovis, Folsom, single-shouldered Sandia, and Plano types) and other associated lithic remains. All these projectile point types had been "integral parts of complexes which reflected a way of life primarily dependent on killing large game animals, many of the species now extinct" (Willey 1966:38). Moreover, "man" by 10,000 B.C. in the New World had been "a specialized hunter of big game, adept in the production of lanceolate flint points for this purpose" (Willey 1966:37). With reference to the Lindenmeier site, a Folsom site, he argued that the "weapons and tools were clearly an artifact assemblage of peoples dependent on the hunt and the utilization of animal skins....the awls, eyed needles, spatulas, and knives or 'fleshers' all reflect the hunting preoccupation of the culture" (Willey 1966:43).

Despite briefly suggesting that the big game hunting aspect may have been over-emphasized because of the inference that many of the sites pertaining to this tradition were no more than kill locations, Willey (1966:38) remained convinced that the big game hunting aspect had been a central part of their lifestyle.

...the big-game pursuit is the most characteristic and diagnostic feature of the culture shared by these particular early Americans. There can be no question that it was an activity of great and, probably, primary importance. Viewed in the perspective of all of pre-Columbian New World history, it imparted a design, a style to their lives. (Willey 1966:38)

Similarly, Wendorf and Hester (1962:166) stated:

There are two main patterns of animals hunted. As his major source of meat, the Llano man selected the mammoth, Folsom and Parallel Flaked man, the bison. In addition, other animals were hunted as indicated by remains in both campsites and kill sites, *but they formed only a minor supplement to the main source of meat.* (Wendorf and Hester 1962:166; emphasis added)

In 1975, Hester (1975), in an article dealing with paleoarchaeology of the Llano Estacado, also supported the belief that big game hunting had been of primary importance for early Paleoindians.

Inspection of the tool types of the Paleo-Indian cultures suggests that the mainstay of their economy was big game hunting. The bones present in the sites verify this assumption and also document the principal animals hunted as being mammoth during the Clovis period and bison during the later Folsom and Parallel Flaked horizons. (Hester 1975:251)

Jennings (1978:24-26), as well, argued that tool types of Clovis pointed to big game hunting as the basic economy with a seasonal roving lifestyle.

It is apparent from these interpretations that a two-fold division or pattern had been derived from the archaeological remains; that is, Clovis hunters were considered specialists in the pursuit of mammoth (e.g., Haynes 1966:111, 1970:81), while Folsom and later hunters had focused on bison (e.g., Hester 1967:179, 1975:251; Martin 1967; Mason 1962; Wheat 1971). However, archaeologists occasionally noted that there was evidence to suggest that Paleoindian hunters had been not unwilling to take other animals in addition to bison and mammoth as the opportunities arose (e.g., Haynes 1966:111; Hester 1967:179; Wendorf and Hester 1962:166).

There was a tendency throughout this time to acknowledge briefly that economic pursuits other than hunting may have been practised or were available, but these acknowledgments were rare and often brief asides (e.g., Hester 1975; Willey 1966:38).

Warnica (1966:355), basing his view on further excavations at Blackwater Draw, suggested that the Clovis way of life had been perhaps not entirely dependent upon big game hunting, and during periods of heavy precipitation, edible seeds from luxuriant grasses would have been available for food. As well, Wendorf and Hester (1962:168), Wheat (1971:24, 26), and Hester (1972:178, 1975) all noted that a few small animals, bird bones, seeds, and grinding slabs were known from Paleoindian sites, but they argued that the evidence overwhelmingly pointed to big game as the staple in the diet, while the "casual use" of wild plants (Wheat 1971:26) and the hunting of small animals had played only a minor role in the economy.

Jennings (1974:91) pointed out that no observed peoples had ever concentrated upon one species alone, so a wider subsistence base than the Paleoindian finds could document had to be assumed. He even suggested that mammoth kills perhaps were the exception, and that lesser animals had been more usually sought (Jennings 1974:91). With regards to the possibility of non-hunting subsistence activities, however, Jennings (1974:92) mentioned only in brief passing that for the Plains, "where many tasty vegetable and berry species abound, it is reasonable to assume that the Llano peoples utilized these in season."

With regard to hunting methods, Wendorf and Hester (1962:166) argued that the most common Paleoindian hunting pattern, as suggested by their review of Paleoindian sites from the Llano Estacado, had been that of stalking and killing bison/mammoth as they were drinking in streams and ponds (see also Willey 1966:39 for similar conclusions). The second most common pattern had been that of the stampede, in which bison were driven into an arroyo, stream, or over a cliff (Wendorf and Hester 1962:167).

In 1966, Haynes (1966:111), in a review of mammoth kill sites and possible methods of hunting mammoth, proposed for the Dent site that the mammoth had been stampeded over a bluff; for the Clovis site, he argued that the mammoths had been stampeded into shallow water; and for the Lehner site, he supported Haury's selective-age culling model. Similarly, Hester (1967:179) echoed Haynes' views on mammoth hunting methods, that early groups had hunted by stampede and fire drive, and used differential selection of young of the species. Wheat (1971:24) argued that since the majority of mammoth kill sites were associated with waterholes and thus possibly lush grazing, ambush had been the principal means of attack, aided in most cases by some form of containment such as cutting foot tendons or the use of fire surround.

Thus the mid-1960s view of Paleoindian lifeways definitely supported the idea of active, successful large game hunting (e.g., Hemmings and Haynes 1969; Hester 1972; Jennings 1974). Paleoindian "man" in the New World was seen as a "skilled and

sophisticated hunter" (Willey 1966:72), following, wounding, harassing, and gradually killing large animals such as the mammoth (Willey 1966:39). This belief in the successful, efficient Paleoindian predator brought to the forefront once again the controversial idea of Pleistocene overkill (see Martin and Wright 1967). This concept was especially advocated by Paul S. Martin (1967, 1973), and supported or considered possible by numerous other researchers (e.g., Hester 1967:170; Irwin-Williams 1967:337-338; Jelinek 1967; Jennings 1978; Mason 1962:243-244), especially when taking into account the rapidly changing ecological niches of the late Pleistocene.

By the 1960s and 1970s, numerous fluted points similar to those being discovered in western kill sites had been recovered from various eastern localities such as Shoop in Pennsylvania (Witthoft 1952), Bull Brook in Massachusetts (Byers 1954, 1955), Reagen in Vermont (Ritchie 1953), Debert in Nova Scotia (MacDonald 1968), and Dutchess Quarry Cave in New York (Funk et al. 1969). It is beyond the scope of this study to deal in detail with Paleoindian interpretation for eastern sites (see Dunbar 1991; Ellis and Lothrop 1989; Lepper and Meltzer 1991; MacDonald 1971; Mason 1962; Meltzer 1988; and Storck 1991 for further details and references), but it appears that eastern Paleoindian archaeologists were more willing to accept the fact that alternate subsistence strategies such as hunting small and diverse game and collecting plant foods may have been practised by eastern Paleoindians, because few, if any, fluted points had been found directly associated with extinct animals such as mammoth and mastodon in the east (e.g., Graham et al. 1981:1116; Griffin 1965:656, 658, 1978:226; Jelinek 1967:198). The majority of eastern fluted points were surface finds.

Nevertheless, the idea that the life of fluted point makers in the east revolved around hunting (e.g., Griffin 1978:226), and especially big game hunting, was difficult to let go. Many archaeologists believed that the specialized subsistence base of big game hunting in the western part of the continent had granted humans the mobility to penetrate and occupy the east (Mason 1962:246). With regard to the Paleoindian occupation in the southeast, Williams and Stoltman (1965:674) suggested that although Clovis finds in the southeast had been primarily from the surface and that no well authenticated association with extinct fauna was known, there was a correspondence between the geographic range of Clovis points and that of mastodon, mammoth, and extinct bison. Archaeologists viewed this correspondence and the presence of fluted points as indirect support for the idea that people in the east had hunted big game as their western counterparts were believed to have done (e.g., Wheat 1971:27; Williams and Stoltman 1965). Later interpretations considered the possibility of caribou as the major game animal of eastern Paleoindians (e.g., MacDonald 1971:32) despite the lack of abundant, solid, direct

evidence. More recently, Meltzer (1988) has argued that, for eastern Paleoindian populations, there was a generalist adaptation practised in the unglaciated southern boreal/deciduous forest regions, and a highly mobile, specialized hunting adaptation involving the exploitation of caribou practised in the tundra/open spruce parkland area to the north. As Morlan (1991:305) noted, though, this supposed Paleoindian reliance on caribou is based largely on site location, size, and layout, ethnographic data, and evidence for caribou associations, some of which are questionable, at only a few sites including Dutchess Quarry Caves (New York), the Whipple site (New Hampshire), and Bull Brook (Massachusetts). Moreover, there are still statements claiming that the hunting of large mammals had been a central focus of early Paleoindian economies in the east, more particularly the Great Lakes region (e.g., Seaman 1994:275). Essentially, the presence of a fluted point had become an unquestionable indicator of the practice of big game hunting.

Chronology, Development, And Distribution Of Early Paleoindian Cultures

During the 1960s and 1970s, the Paleoindian Big Game Hunter stage, seen as covering a considerable time span (12,500-7,000 years B.P.), was essentially divided into three sequent groups: Llano, Folsom, and Plano. Llano sites were characterized by the association of mammoth bones and Clovis fluted points, Folsom sites by the remains of extinct bison and fluted Folsom points, and Plano sites by the presence of unfluted Plano points and modern fauna (e.g., Jennings 1974:81-83). By the late 1970s and early 1980s, the Clovis complex was believed to be restricted in time to 11,500-11,000 years B.P., while the Folsom complex ranged from 11,000 to 10,000 years B.P. (e.g., Bryan et al. 1978:1277; Haynes 1980, 1982).

Wiley (1966:51) best summarized the prevailing view at the time with regard to the relationship and development of these various early cultures. Clovis, seen as a continent-wide complex (Hester 1972:179), was considered the earliest, and as time passed a number of regional adaptations developed that changed this earlier big game hunting pattern. Folsom, restricted to the American High Plains, was one of the first of these adaptations, and apparently had been related to the shift from mammoth to bison hunting on the Plains. Adaptations had occurred as well in the east, followed by the final expressions on the Plains of the Big-Game Hunting tradition in the form of numerous Plano traditions (Wiley 1966:51).

There was a common belief that the decrease in the size and change in shape of fluted and lanceolate projectile points had been related to the type of fauna hunted (e.g., Haynes 1969:710). Generally, the change from the use of Clovis to Folsom points was

associated with the extinction of the mammoth, and thus the change from mammoth to bison as the principal meat staple. Similarly, the change from Folsom to Parallel Flaked points was associated with the change in bison species hunted (e.g., Wendorf and Hester 1962:168). Despite these changes in focus on game species, archaeologists tended to interpret the apparent similarity in tool inventory, types of sites, hunting and butchering techniques, and site locations among all Paleoindian complexes as suggesting a strong Paleoindian cultural tradition which had extended without a break from the Llano horizon until the beginning of the Archaic tradition (e.g., Wendorf and Hester 1962:168-169).

In view of the data from the Lindenmeier site that had indicated the contemporaneity of earlier Folsom components with part of the Clovis sequence, Wilmsen and Roberts (1978:175) challenged this prevalent belief that Clovis was uniformly older than Folsom, and that there had been a sequential displacement of Clovis by Folsom types. They argued for the need to reexamine the fluted point category and its many regional variants. As well, the issue of the Cochise culture and its relationship to the "Big-Game Hunting Tradition" continued to remain a concern at this time. Willey (1966:58), in noting that the Sulphur Spring phase, the earliest of the Cochise, was associated with extinct fauna and had radiocarbon dates (7350-6270 B.C.) that were out of line with the faunal assemblage, concluded that mammoth must have lingered on in southern Arizona to a relatively late period. Already there was a fixed view that Clovis/Folsom big game hunters had been indisputably the earliest inhabitants in the New World; thus, the view that the Cochise culture could have been contemporaneous was not considered because it did not fit with the big game hunting model. The data were selectively interpreted and explained in a way to support the model.

Influences from New Archaeology

By the 1970s, the belief advocated by New Archaeologists that all aspects of culture could be recovered from the archaeological record, began to influence Paleoindian studies. Many archaeological interpretations of Paleoindian data were no longer merely statements that Paleoindian culture had been characterized by a big game hunting lifestyle. Instead, there appeared a trend towards examining aspects related to but beyond the simple hunting lifestyle interpretations, such as concerns with social organization, population movements, group formation and maintenance, territoriality, and demography (e.g., Hester 1975:255-256; Jennings 1974:91-94, 104; Wilmsen 1974; Wilmsen and Roberts 1978:179). Lithic studies were especially becoming popular, with the determination of raw material and quarry locations in an attempt to reconstruct population

movements and trade. With these studies came the realization that Paleoindian populations had tended to use high quality lithics from long distance quarries. This fact was often interpreted as evidence for widespread trade (e.g., Wheat 1971:22) or high mobility (e.g., Haynes 1980) among Paleoindian populations.

As well, influences of processual archaeology with its focus on New Archaeological methods such as the hypothetico-deductive approach and a focus on statistics began appearing in Paleoindian studies, as can be seen in Wilmsen's (1974) study of the organization of Pleistocene societies in North America. Wilmsen (1974) adamantly argued for the need to formulate models by means of a systematic series of hypotheses in order to connect archaeological data to theoretical concepts, that is, to construct models from theoretical statements in order to predict empirical consequences. This method essentially was the beginning of a trend in Paleoindian studies focusing on the development of predictive models.

Moreover, there was a realization that reconstructions of early Paleoindian lifestyles rested on little solid data, and hence there was a need to rely greatly on theory and especially ethnographic analogues (e.g., Jennings 1974:90). For instance, Jennings (1974:91-92) proposed a lone-hunter analogy to characterize Llano hunting practices, using the Ona tribe from South America as an analogue (see Appendix A). From this analogy he postulated the nuclear/extended family as the effective social and economic unit, sparse population, few material possessions, and a continuous search for food. Similarly, Hester and Grady (1977) outlined the characteristics of a "typical" hunting-gathering society based on ethnographic accounts, and then proceeded to argue that statistical analyses of Paleoindian site data from the Llano Estacado supported this general analogy. As well, Wilmsen (1974:117-118) turned to ethnographically known hunting societies such as the Great Basin groups and the !Kung Bushmen bands for a fuller picture of Paleoindian band organizational structures.

Discussion

The late 1960s and early 1970s saw a continuing support for the belief that the Llano stage/Clovis complex had existed throughout the entire North American continent. This complex was characterized as a culture of highly skilled and technologically advanced hunters specializing in hunting mammoth and other large game, very successful as attested by their rapid expansion (e.g., Haynes 1969:710, 1970:81, 90; Haynes and Hemmings 1968:186; Hester 1972:179; Mason 1962:245). The view of early Paleoindian populations and lifeways was best summarized by Wedel (1978). Late

Pleistocene waterholes had attracted mammoths, where Clovis people had actively ambushed and killed individual animals, having a preference for immature and female mammoths (Haynes and Agogino 1966; Hester 1972; Jennings 1974:89, 1978; Wedel 1978:191; Wheat 1971). Butchering had been carried out where the mammoth had fallen. Highly mobile, the Clovis population had been scattered and transient, and although evidence indicated that other game had been taken as opportunities had arisen, Clovis hunters and later Folsom hunters had clearly been specialists in taking mammoth and bison (Haynes 1966, 1970:81; Hester 1967:179). The lifestyle and organization of the Folsom culture was considered to be not a great change from that of Clovis times except for the shift to bison hunting and the introduction of the new mass kill technique (e.g., Jennings 1974; Wheat 1971). Some archaeologists suggested the possibility of the gathering of plant foods having supplemented the Paleoindian meat diet (e.g., Hester 1972:178; Jennings 1974; Sellards 1952; Wedel 1978), but these references were few and brief. Most archaeologists believed that the "casual use" of plant foods supplied only a small portion of the diet, and that the major economy had been based on hunting big game (e.g., Haynes 1980; Haynes and Hemmings 1968; Haury et al. 1959; Jennings 1978; Mason 1962; Wheat 1971:24, 26). Hunting was seen as the active focus of the culture, while smaller game and other edibles had been taken opportunistically (Haynes 1970:81), in a passive, inconsequential manner.

...there are, in fact, indications that smaller game and other edibles were taken or collected *as opportunities arose*. (Willey 1966:38; emphasis added)

Wedel (1978:191) even suggested that the grinding stone from the Clovis site could have been used for grinding dried meat. While this use is possible, it appears that the notion that mammoth and bison had been the most important food resources of these early Paleoindian populations (e.g., Hester 1967:169; Jennings 1978; Mason 1962:244; Wheat 1971:26) had become so firmly entrenched in archaeological thought that it took on major importance in archaeological interpretations.

In summary, interpretations of Paleoindian lifeways during this time frame were still relatively basic and generalized. Conclusions were often founded on a very small sample of sites; moreover, the assumption was prominent that one or a few sites were representative of the culture (e.g., Haynes 1980, 1982; Hester 1975). The concern was still with individual sites rather than with a consideration of the larger picture. The uncritical acceptance of the big game hunting model prevented the consideration of the possibility of alternative subsistence methods, despite the growing evidence to suggest

otherwise. The simplistic black and white division equating Clovis with mammoth and Folsom with bison still underlay many interpretations (e.g., Hester 1967:179, 1975:251; Martin 1967; Mason 1962; Wheat 1971).

During the 1970s, most analyses in Paleoindian studies were focused on stone artifacts (and often only projectile points and finished tools) and their technological and functional variables and spatial clustering (e.g., Wilmsen and Roberts 1978). This fixation with stone tools (primarily "projectile points") and a concern with chronology is reflected in many of the contemporary writings of the time (e.g., Jennings 1974; MacDonald 1971; Willey 1966). For example, in Willey's (1966) introductory book of American prehistory, the section dealing with the Big-Game Hunting Tradition was characterized by detailed descriptions of projectile points (along with the majority of photographs and figures consisting of projectile points) and discussions of the chronology of points and traditions.

Already in 1962, Wendorf and Hester (1962:169) had identified these dominant and problematic trends in Paleoindian studies. To correct them, they called for more complete documentation of Paleoindian sites especially with regard to faunal data, lithic raw material, paleoenvironmental data, and, most importantly, details of the manufacture of all artifacts, not just projectile points. Similarly, Shafer (1977), in discussing eastern Texas early lithic assemblages, identified a few of the major problems in Paleoindian studies during the 1960s and 1970s, that is, the focus on projectile points, and the assumption that the presence of lanceolate point forms indicated Paleoindian big game hunting. He believed that it was unfortunate that projectile points had attracted the attention of archaeologists because, other than serving typological purposes, they were perhaps the least meaningful artifacts in an entire assemblage (Shafer 1977:191). Arguing that "lifeways should not be described merely on the basis of point forms or the presence or absence of one kind of artifact," he suggested that reconstruction of lifeways should be based on environmental data (i.e., plants, animals, raw materials), and the total assemblage of artifacts which represented behaviour products of human adaptations to the environment (Shafer 1977:195).

The influence of New Archaeology can be clearly seen in these (Shafer 1977; Wendorf and Hester 1962) and other calls (e.g., Wilmsen 1970:81) for a shift away from a focus on projectile points, chronology, typology, and hunting in Paleoindian studies to a focus on lifeways, environment, adaptation, and behaviour. However, despite the fact that New Archaeological influences were beginning to "open up" Paleoindian studies to new methods, new interpretations were not considered. The big game hunting model found unquestioning support from the use of unquestioned and generalized ethnographic

analogies (e.g., Hester and Grady 1977; Jennings 1974; Wilmsen 1974); from the assumption largely based on the volume edited by Lee and DeVore (ed. 1968) of a universal, typical hunting-gathering society; from the application of statistics and hypothetico-deductive testing (e.g., Judge 1973; Wilmsen 1970, 1974); and from the incorporation of environmental-ecological data in interpretations (e.g., Hester 1975; Wendorf and Hester 1962).

POST-PROCESSUAL ARCHAEOLOGY (1980s TO PRESENT)¹

Introduction

The focus on scientifically and objectively creating nomothetic generalizations about human behaviour resulted in an anti-historical bias within the New Archaeology (Trigger 1989a:314), as well as the denial that consciousness and intentionality played a significant role in shaping human behaviour (Trigger 1989a:306). The processual approach had moved decisions about cultural behaviour farther away from the individual, with a resulting trend toward determinism (Flannery 1967:122). With individuals seen at the mercy and control of the functioning of the larger self-regulating system, New Archaeology had successfully de-humanized archaeology. Individuals were seen as passive, human behaviour as predictable and determined (Hodder 1985:21). The primary goal was to reach not the person behind the artifact but the system behind both person and artifact (Flannery 1967:120). By the 1970s and 1980s, archaeologists were beginning to realize that there was much more diversity in both prehistoric cultures and human behaviour than the New Archaeology and its universal laws had ever anticipated. It was becoming apparent that the world and, more specifically, human behaviour was and is shaped by such diverse factors as meanings, ideas, beliefs, and cultural differences, not simply demographic and environmental factors (Kohl 1993:17; Trigger 1989a:330).

More recently, a widespread questioning of the basic precepts that guided New Archaeology has resulted in the development of numerous approaches, often referred to as post-processual (see Earle and Preucel 1987; Hodder 1985, 1986; Shanks and Tilley 1987, 1989, 1992; Trigger 1989a). Post-processual archaeology has appeared in such diverse shapes and forms that it is difficult to define a common core (Kohl 1993:13). These approaches are related in part to the larger postmodernism trend occurring within other disciplines (see Rosenau 1992) that has affected and influenced academics and

¹ The temporal division between processual and post-processual archaeology is entirely arbitrary and purely intended to simplify this history of archaeology.

intellectuals in the 1980s (Chippendale 1993:27). Postmodernism rejects traditional scientific approaches, including the belief in certain knowledge and truth, in all-encompassing world views, and in the ability to evaluate interpretations, because these approaches tend to lead to narrow evidence, simplification, and trivial statements. Instead, postmodernists opt for pluralism, subjective relativism, multiple realities, and the belief that there are no universal criteria available for evaluation (Rosenau 1992:137).

Interests in postmodernist archaeology are now being focused on the role of noneconomic factors in bringing about social change, with a growing emphasis on symbolic and structural aspects (see Hodder 1982). Focus is being placed on the individual as an active social agent (see Hodder 1985, 1986). Cultures are no longer considered closed systems, and the debate has reopened on the significance of ethnographic analogies for archaeological interpretation (e.g., Wylie 1985). There is a rejection of the positivist view, and increasing doubts that an objective understanding of the past can ever be attained (e.g., Hodder 1986; Shanks and Tilley 1989; Tilley 1991). In contrast to earlier building and testing of general laws in which the dynamics of human action were examined out of time and place, a new emphasis is placed on a historic component to archaeological research (Gero et al. 1983:3). As Gero et al. (1983:4) observed, older models of homeostatic, ecological balance are giving way to studies of tension and contradictions.

With Schiffer's (1976) "behavioural archaeology" came the realization that because archaeological sites are distorted, archaeologists have access to only a small sample of material from the past. Moreover, post-processual archaeologists have realized that correlations between material culture and human behaviour, functional explanations, and systems theory only describe but do not provide an explanation for change or explanations of why events happened (Trigger 1989a:377). There is also a realization from ethnoarchaeological studies that in many cases, material culture does not reflect human behaviour but rather is mediated by the conceptual frameworks and cultural traditions of the people making and using those material items (Trigger 1989a:394). Material culture is seen as an active meaningful element in group relations, gaining its significance through its social usage, and not as a mere reflection of ecological adaptation (e.g., Hodder 1985, 1986; Tilley, ed. 1990, 1991).

Plains Prehistory and Paleoindian Studies

Today, there is a tendency among archaeologists to view aspects of Northern Plains prehistory as relatively static and unchanging from Paleoindian times to more

recent prehistoric times. Michlovic (1986:210) stated that "Plains archaeology reveals widespread continuity in the hunting-gathering lifestyle, from Paleo-Indian through Late Prehistoric times, with significant deviations attributable to the intrusion of social and technological innovations from the east or southwest." Wedel (1982c:169) believed that

...the Plains traits that have historical depth--the whole bison-hunting tradition--are more likely to be of very long standing in the region....there has been a Plains culture area for a very long time, an area whose boundaries and environmental characteristics have shifted from time to time, but with a central core of natural and cultural features that distinguish it from its surrounding areas and in which a functionally coherent way of life dominated.

Frison (1991a:19) even argued that "the Paleoindian hunting group was about the same size and of the same complexity as the terminal Late Prehistoric period hunting group and both were practicing a very similar lifeway." As well, Bamforth (1988:155) maintained that the similarity between Paleoindian and Late Prehistoric archaeological records (i.e., both are dominated by large mammal kill sites and also contain a smaller number of camps producing evidence for a lesser reliance on other foods) supported the idea of similar lifeways, that is, a focus on hunting.

It is apparent that the stability of the bison hunting adaptation, the Plains peoples' dependence on bison, and the longevity of this traditional pattern are unquestioningly accepted as fact by many Plains archaeologists. In essence, an image of static, uncreative, uninnovative populations at the mercy of the environment and productivity of bison populations has been created.

Northwestern Plains prehistoric groups were always relatively small, operating at the band level, and closely in tune with the environment. There were no possibilities of forming permanent settlements and they only returned to the same location when natural conditions allowed the food sources to be productive enough to support the group. (Frison 1991a:289)

More specifically, views of Plains Paleoindian lifeways in the 1980s and 1990s are basically a continuation of earlier big game hunting models. As Meltzer (1993a:295) noted, the notion of a continent-wide Paleoindian adaptation to specialized hunting of large terrestrial fauna is still pervasive (e.g., Bonnicksen et al. 1987; Kelly and Todd 1988). Clovis and Folsom peoples are seen as capable, active, and very successful hunters (e.g., Agenbroad 1980; Frison 1986a, 1987, 1990a, 1990b, 1991a; Haynes

1982:392; Johnson et al. 1980:113; Jones 1990; Reeves 1990; Saunders 1978/79:8, 1980:89, 1992; Webb 1992). Clovis hunters used the knowledge of the behavioural mannerisms of mammoths (Johnson et al. 1980:113), were selective and deliberate in hunting, commonly ambushing them at water places (Haynes 1982:392) or even confronting entire herds and dispatching them (Saunders 1977, 1980, 1992). With the beginning of megafaunal extinction, Paleoindian hunters (i.e., Folsom and later Agate Basin populations) shifted their focus to bison, and hunted by communally-organized mass kills (Frison 1991a; Wheat 1971:25). Paleoindian projectile points were the lethal weaponry of the "wise" Paleoindian hunter, who most likely tested each point carefully before use to avoid failure of his weaponry at the crucial moment (Frison 1993:243-244). Although brief mention is occasionally made to the likelihood of these people collecting plant foods (e.g., Haynes 1980:119), scavenging mammoth carcasses (e.g., Saunders 1978/79:10, 1980:97), and hunting other animals (e.g., Haynes 1980:117), the belief is still strong that Paleoindian subsistence was primarily based on hunting mammoth and bison for food and material resources (e.g., Agenbroad 1978; Bamforth 1985, 1988; Davis and Greiser 1992:276, 280; Frison 1991a, 1993; Greiser 1985; Hayden 1982; Haynes 1982:383, 390; Hofman and Ingbar 1988:343; Johnson 1978; Judge 1973; Kelly and Todd 1988; Reeves 1990; Saunders 1980:87; Wheat 1972). As Meltzer (1993a:297) pointed out, there are still the occasional statements which, rather than ignoring or briefly discussing the possibility, downplay the significance of plant foods in early Paleoindian diets. For example, West (1983:375) argued that the suggestion that plant foods had been a significant part of the Clovis diet was not provable nor logical since there was no evidence of plant remains in Clovis sites (Meltzer 1993a:297).

Highly mobile lifestyles characterized these big game hunters (Bamforth 1988; Boldurian 1991; Greiser 1985; Hofman and Ingbar 1988; Kelly and Todd 1988; Reeves 1990). This view was seemingly supported by the similarities in tool kits from the east and west (Haynes 1980:119) and their use of exotic lithics (Frison and Stanford 1982; Goodyear 1989; Haynes 1980:118). Earlier beliefs that saw Clovis restricted in time to 11,500-11,000 years B.P. have recently been reconsidered based on a statistical reanalysis of supposedly reliable radiocarbon dates (see Haynes 1993). The average age for Clovis is now seen as slightly younger ($10,920 \pm 40$ years B.P.) than the original 11,200 years B.P., whereas the average of six AMS dates from the Folsom site suggest an age of $10,890 \pm 50$ years B.P. for Folsom (Haynes 1993:220-223; Frison 1990b:15). If correct, as Frison (1990b:15) stated, this dating suggests that the time lapse between the Clovis and Folsom complexes could have been quite short; the complexes may actually have overlapped in time.

As Ingbar (1992:172) noted, in the past fifteen years there has been an attempt to link archaeological remains of hunting-gathering societies to general properties of human group adaptation, primarily with a focus on subsistence patterns and mobility regimes (e.g., Binford 1978, 1980; Kelly 1983; Shott 1986). This view is evident in Paleoindian studies (see Appendix A), with an obvious trend away from the previous focus on projectile points, typology, and chronology, and a shift towards more in-depth examination of Paleoindian lifeways and social aspects. As well, there is a realization that environments were different from those of today (i.e., reduced seasonality) and rapidly changing at the end of the Pleistocene, and some archaeologists are attempting to incorporate this factor into Paleoindian models (e.g., Bamforth 1988; Bonnicksen et al. 1987; Greiser 1985; Johnson 1991; Kelly and Todd 1988; Martin et al. 1985). Current Paleoindian studies tend to focus on lithic raw material and origins, and aspects of lithic technology (e.g., Andrefsky 1991; Boldurian 1991; Ellis and Lothrop 1989; Goodyear 1989; Hofman 1992; Ingbar 1992; Meltzer 1989), and the development of predictive models of subsistence and settlement patterns (e.g., Bamforth 1988; Greiser 1985; Kelly and Todd 1988). In addition, the active role of humans in Pleistocene extinctions is still considered possible; that is, the combination of skilled late Pleistocene hunters and the environmental stress brought about by late Pleistocene climatic changes could have led to large scale megafaunal extinction (e.g., Agenbroad 1984:103; Haynes 1982:398; Saunders 1978/79, 1980:96, 1992:140; see Grayson 1980 for an in-depth examination of the development of various explanations, including that of overkill by Pleistocene hunters, for Pleistocene extinctions).

Up to this point, the discussion has mainly focused on professional archaeological interpretation of North American Pleistocene populations, but what about the popular image of Paleoindian life? In past years, the public has been influenced by portrayals of Paleoindian life from the National Geographic magazine. Articles such as those written by Henry (1955), Stanford (1979), and Mehringer (1988) have tended to support the big game hunting interpretation by stressing beautifully crafted fluted projectile points as weapons of the Paleoindian, and the hunting of Ice Age mammals, all reinforced with dramatic pictures of the killing of scores of frantic bison (see Stanford 1979) and images of the immense task of butchering spectacularly large ice age bison (see Henry 1955).

More recently, novels dealing with Pleistocene populations have become enormously popular. Initial story lines focused on the Old World and the time surrounding the emergence of modern Homo sapiens sapiens and their co-occurrence with Neandertal populations. For example, Jean M. Auel's Mammoth Hunters and Björn Kurtén's Dance of the Tiger characterized late Pleistocene populations in the Old World as

practising a wide subsistence base ranging from the gathering of plant foods and fishing, to the hunting of several types of game animals, including the active hunting of mammoths. Now, novels are available that deal exclusively with New World prehistoric populations, several of which focus on the Paleoindian era (e.g., William Sarabande's The First American Series and W. M. Gear and Kathleen O'Neal Gear's People of the Wolf Series).

In some ways, these portrayals are more humanistic because the authors have added the human element, dealing with a whole range of cultural aspects in addition to hunting, such as human interaction, gender relations, ritual, alternative subsistence strategies, and gathering plants and herbs for medicinal purposes, topics which archaeologists have hesitated to consider. Yet these novels still carry with them many of the questionable assumptions that characterize archaeological interpretations of Paleoindian lifeways, essentially because the authors ultimately are basing their stories upon the current archaeological interpretations. For example, as Pollak (1991) illustrated for Auel's books, the gender biases prevalent in the scholarly literature of the 1970s and 1980s, and ultimately based on stereotypical and ethnographic views of hunter-gatherers, are faithfully reflected in Auel's reconstructions of Old World Pleistocene cultures. Specifically for North American Paleoindians, these novels portray populations as mainly hunters of game such as mammoth, bison, caribou, muskox, and horse. In addition to the central role which hunting large game plays in these stories, the influence of ethnographic images of hunter-gatherers, especially northern-adapted groups such as the Inuit, is quite obvious. High mobility, the image of late Pleistocene life as a struggle to survive, and the unquestioned notion of a strict division of labor with men hunting and women being subservient to and denigrated by men and taking care of the children and gathering activities, underlie many of these stories.

In summary, current archaeological research in Paleoindian studies tends to focus on methods of dispatching and butchering Pleistocene fauna (e.g., actualistic and experimental studies such as Frison 1986b, 1989; Lamb 1992; Stanford et al. 1981), ecology (e.g., Bamforth 1988), and climatic and geomorphological reconstructions of Paleoindian environments and the resulting human adaptive strategies (e.g., Greiser 1985; Kelly and Todd 1988). In effect, as noted by Gero (1993:35), the research emphasizes the resources available for exploitation and the strategies and patterns used to acquire them. This situation is partially due to the fact that processual methods of analysis and interpretation presently dominate Plains archaeology and, especially, Paleoindian studies, while post-processual approaches have had little, if any, influence (for an exception with regards to Plains archaeology, see Duke and Wilson 1995). As

Gero (1993:35) remarked, what about the social world of Paleoindians? Acquiring and eating megafauna must have been only a small part of the whole dynamics of Paleoindian society (Gero 1993:35).

CHAPTER V

A CRITICAL ANALYSIS OF PALEOINDIAN MODELS

INTRODUCTION

As evident from the discussion in the previous chapter, and noted by Fisher (1992:51), co-occurrences of Paleoindian artifacts with mammoth and bison bones in North American sites have promoted the belief that late Pleistocene peoples were specialized big game hunters.

These enormous bones beget vivid images of ancient hunters contriving to slay these rugged animals and subsequently feasting on the abundant meat, organs, and other carcass parts. (Fisher 1992:51)

Moreover, the belief that the distribution of Paleoindian fluted projectile points throughout the North American continent indicates the widespread presence of a specialized big game hunting economy still underlies many interpretations (e.g., Kelly and Todd 1988). In effect, these assumptions have formed the basis for defining a Paleoindian period in North America characterized by big game hunting (Bryan 1991:20). But the recent accumulation of data, especially for Clovis adaptations, has suggested that Paleoindian lifeways and subsistence strategies were not so uniform and homogenous over the entire continent (see Bonnicksen and Turnmire 1991; Meltzer 1993a:304; Soffer and Praslov 1993). New data and reevaluations of old and more recent data (e.g., G. Haynes 1991; Johnson 1991; Kornfeld 1988; Todd et al. 1990, 1992) are now forcing archaeologists to reconsider their previous big game hunting interpretations for Paleoindian populations.

It is thus obvious that there exists a need to analyze critically or "deconstruct" Paleoindian models emphasizing the centrality of big game hunting. Deconstruction is the term for a postmodern method of analysis that involves "demystifying a text, tearing it apart to reveal its internal, arbitrary hierarchies and its presuppositions. It lays out the flaws and the latent metaphysical structures of a text. A deconstructive reading of a text seeks to discover its ambivalence, blindness, logocentricity" (Rosenau 1992:120). As noted by Hodder (1986:146), a text refers to a concrete product written to do something, the product of discourse. For postmodernists, the intent of deconstruction is not to

improve, revise, or offer a better version of text (Rosenau 1992:xi). However, because deconstruction essentially opens texts to new readings (Yates 1990:276), I will do just that in the following chapters; that is, I will reconstruct the "text," in this case, a Paleoindian subsistence/settlement model, from an alternative perspective. In the present chapter I will focus on deconstructing, or what is essentially critiquing, this "big game hunting" model, first through a sociopolitical analysis, and second by revealing the implicit assumptions and contradictions associated with the model.

SOCIOPOLITICAL ANALYSIS

Introduction

The recent post-processual and postmodernist trends in archaeology and the other social sciences, and their questioning of the positivism advocated by the New Archaeology school have resulted in the awareness that archaeological interpretations are influenced by the social, political, and historical context in which the archaeologist operates, as well as the cultural beliefs and biases of the archaeologist (Trigger 1989b:31). Therefore, the first step in deconstructing is to ask how this big game hunting model developed and became so dominant, and what were the major influences on its development.

Historical Development of the Big Game Hunting Model

As noted in the previous chapter, early views in American archaeology and anthropology were greatly influenced by European data and models. The interpretation of mammoth hut-dwelling cultures of central Eurasia as active mammoth hunters no doubt greatly influenced North American archaeologists in their interpretations of the Folsom and Clovis finds. As well as Old World archaeological interpretation and research influencing Paleoindian studies, Old World evolutionary studies and reconstructions of the life of early hominids also greatly contributed to North American archaeological views on Paleoindian data. Until the 1950s, Darwinian beliefs that saw human characteristics as an outcome of natural selection dominated anthropological thought. As Lewin (1987:314) noted, it was not until 1953 that Raymond Dart (1953) had established a base for a new explanatory era, "Man the Killer Ape," with his article entitled "The Predatory Transition from Ape to Man." In view of what he saw as signs of murderous violence in the fossil record (Lewin 1987:314), Dart concluded that humans were by nature violent

killers and hunters. Thus emerged the powerful hunting hypothesis of human origins, which replaced the Darwinian view with the belief that it had been the demands of the hunt which had made us human and separated us from other primates (e.g., Laughlin 1968:304; Washburn and Lancaster 1968; see both Lewin 1987 and Cartmill 1983 for detailed reviews of the development of the hunting model). Although the hunting hypothesis had been proposed earlier in the 1910-1920s by several British scientists (see discussion in Cartmill 1983:68), the scientific community as well as the world was not prepared to hear about the "killer ape" until after World War II atrocities, Freud and psychoanalysis, and the resurgence of the notion of human depravity (Cartmill 1983; Lewin 1987:315). This model of the hunting killer ape was later popularized by the playwright Robert Ardrey in a number of books (Ardrey 1961, 1976).

This emphasis on hunting and its apparent importance for human evolution permeated archaeological interpretations, and Paleoindian studies were no exception. But the "Man the Hunter" conference in 1966 (Lee and DeVore, ed. 1968) modified this story somewhat. The information presented at the conference provided the basis for questioning the hunting model because of the growing amount of evidence that indicated that gathering and female contributions played an important role in hunting societies' lifeways. The editors (Lee and DeVore 1968:4) even noted in their introduction that the term "hunters" was only a convenient shorthand, since the majority of peoples considered in the volume subsisted primarily on resources other than meat, such as wild plants and fish. Moreover, the ethnographic data, especially that of the !Kung (Lee 1968), seemed to indicate that hunter-gatherers did not and had not lived harsh and suffering lives, struggling for mere existence as had been believed for so long, but were perhaps much more productive and successful, as evident by Sahlins' proposal of the phrase "the original affluent society" to describe modern and Paleolithic hunting-gathering populations (Sahlins 1968:85).

Consequently, by the 1970s the hunting hypothesis and the "killer ape" scenario began to fall apart, even more so after the pioneering taphonomic work of Brain (1981) and his demonstration that the australopithecines had played no role in the gathering of the animal bones found in association with their own skeletons. As Lewin (1987:317-318) indicated, in response, new hypotheses of human evolution were proposed, focusing on sharing and cooperation (e.g., Isaac 1978, 1979), monogamous bonding (e.g., Lovejoy 1981), and the mother-infant bond and food sharing (e.g., Tanner and Zihlman 1976; Zihlman 1981; Zihlman and Tanner 1978). Moreover, an increasing number of studies were demonstrating that scavenging could have provided an important and regular source of animal foods for early hominids (e.g., Blumenschine 1987, 1989), and that it was a

more probable explanation to account for the faunal accumulations at early hominid sites (e.g., Binford 1981, 1988; Shipman 1983, 1984, 1986; see also Blumenschine and Cavallo 1992 and their detailed discussion relating to the importance of scavenging, as opposed to hunting, for early hominids and human evolution). An aggressive image of human origins was thus replaced with a more peaceable one, possibly in response to contemporary social experience, for example, as Lewin (1987:318) noted, the contained threat of nuclear war.

Despite these major shifts in thought, remnants of the hunter model persisted, especially in Paleoindian studies. The influence of the "Man the Hunter" conference on Paleoindian interpretations, and the revelation that gathering was an important aspect of some hunting-gathering societies, resulted in only brief acknowledgments that other activities such as gathering and small game hunting might have been practised by North American Pleistocene populations (see previous chapter). The focus remained on hunting aspects of the culture, with the belief still strong that hunting had played a major economic role in Paleoindian subsistence. However, the new data suggesting hunter-gatherers were affluent, successful societies resulted both in the de-emphasis of the 1940-1950s view that Paleoindians had lived a harsh and brutal existence (e.g., Henry 1955; Irwin et al. 1962; Jennings 1974:92), and in a renewed consideration that Pleistocene populations had been such efficient and skilled hunters that they had left behind them a land devoid of Pleistocene megafauna (e.g., Martin 1967, 1973).

Documentation of artifacts within extensive bone beds, first at Folsom and then later at other bison and mammoth kills (see previous chapter), played a significant role in this early development of and continued emphasis on the view of Paleoindian as specialized big game hunters (Todd et al. 1990:815). No doubt the dominance of kill and butchering localities among these Paleoindian archaeological sites seriously biased the view of Paleoindian subsistence and lifeways (see discussion in Bamforth 1988:155). From these beginnings, Paleoindian studies "have converged with extraordinary single-mindedness on an uncontested (or perhaps only very recently questioned) research construct" (Gero 1993:34), that is, one of specialized, successful, big game hunters. It was not really until the 1960s and 1970s, with increasing discoveries of a wider variety of Paleoindian site types than kill sites, that data were available to suggest convincingly a possible alternative to or broadening of the big game hunting model. Moreover, it must be remembered that in the early and middle part of this century, excavators of Paleoindian sites were rarely concerned with finding evidence for systematic plant use. In many cases standard excavation procedures did not even allow for the recovery of small artifacts and botanical remains. In addition, New World Paleoindian studies began and developed

largely around the typological analysis of projectile points (Frison 1990b:14), further adding to the emphasis on hunting, an emphasis still reminiscent in Paleoindian studies today. Furthermore, as Gero (1993:35) noted, prior to radiocarbon dating, the identification of Paleoindian markers had been only verified by association with extinct Pleistocene mammals. In most of the earlier Paleoindian discoveries (e.g., Blackwater Locality No. 1, Dent, Lindenmeier, Lubbock Lake), it was the megafaunal remains that led to discovery (Meltzer 1993a:294). Thus, historically, the equation of "early man" with megafauna and the hunting of big game was crucial and necessary to proving that "man" was early (Gero 1993:35).

With increasing discoveries that began to indicate that the fluted point was widely distributed throughout North America, archaeologists assumed that this distribution justified the interpretation of a single, contemporaneous, continent-wide adaptation to specialized hunting of large terrestrial fauna (e.g., Mason 1962). Emphasis was placed on the similarities rather than differences in the morphology and technology of artifacts between Paleoindian assemblages over the entire continent. Because points and assemblages "appeared" to be so similar across the continent, it was then believed that these fluted point makers must have been doing the same thing at the same time; that is, they were relying upon big game (Meltzer 1993a:294). This rapid acceptance of a universal Paleoindian stage occurred because archaeologists immediately assumed Paleoindians had to have been the earliest occupants of the North American continent from which subsequent, more specialized populations later developed. Thus, similarity was to be expected for these original populations. As Gero (1993:35) noted, Paleoindian was seen as the earliest common denominator that archaeologists could study everywhere in the country. It must be remembered that this notion of a widespread Paleoindian big game hunting tradition made perfect theoretical sense for earlier archaeologists because it explained the rapid spread of fluted points across the continent, and the apparent similarity in tool kits and reliance on exotic lithics; moreover, it also accounted for why Paleoindians were highly mobile (Meltzer 1993a:294). Specialized big game hunting by the earliest Paleoindians was considered the mechanism by which they were able to override the ecological variability of the late Pleistocene and expand quickly into unoccupied regions (Meltzer 1993a:298; e.g., Mason 1962:243, 246).

Interpretation of the Data

Preconceived Ideas

The development of the big game hunting model had much to do with how the data had been interpreted, especially with respect to how preconceived ideas had influenced interpretations. It is now widely recognized in anthropology that preconceived beliefs and notions can and do influence how data are interpreted and given meaning. Roger Lewin (1987) provided numerous examples in which the power of preconceived beliefs, expectations, and implicit assumptions had guided interpretations of the fossil record throughout the history of paleoanthropological work. For example, the rapid acceptance of the Piltdown finds as an ancient form of humanity was due to its form being precisely what would have been predicted given the prevailing theory about a large brain early on in evolution. The rejection of the Taung child as a hominid form, on the other hand, was due to an established pattern of belief that saw Asia, not Africa as Darwin had suggested, as the homeland of the birth of humankind (Lewin 1987:53).

Paleoindian studies are no exception; preconceived ideas and expectations have influenced interpretations of Paleoindian data throughout its history. As Gladwin (1937:133) stated for the time prior to the Folsom discovery:

Ever since the beginning of the study of Man in the New World, investigation has been hindered by certain fixed beliefs which have minimized or destroyed the value of evidence which could not be reconciled with these beliefs.

Gladwin believed that with the Folsom discovery, archaeologists had been liberated from these restrictions. However, it is apparent that they essentially had created a new set of restrictions for themselves, ones which confined them to an interpretation of a big game hunting lifestyle and all its related assumptions.

During the late 1800s and early 1900s, with the Bureau of American Ethnology's focus on the ethnographic present as being comparable to the past, and the use of the direct historical approach in Plains research by W. D. Strong and other researchers, it is not surprising that many archaeological interpretations, including those dealing with Plains Paleoindian data, were coloured by preconceived beliefs derived from ethnographic accounts. The image of historic bison hunters, and the belief that life had been difficult and seasonal on the Plains and only possible with a focus on big game (i.e., bison), rather than survival only on plant foods and small game, greatly influenced those early Paleoindian interpretations.

Development of "Stories" and "Myths"

There is a fine line between preconceived ideas influencing one's interpretations and the act of actually extracting from the data the pattern that one expected or wanted to see, ignoring evidence not agreeable to confirm one's established views or theory. Ambiguous and partial evidence relating to the past can and is often readily manipulated to create, as Gary Haynes (1991:318) termed it, "fictions of almost any sort," which in turn are then transformed into interpretations that are equated with knowledge and truth about the past, and used as proof of other interpretations (G. Haynes 1991:260). Moreover, once these unproven assumptions have been transformed into truths, it becomes extremely difficult to challenge and refute them (G. Haynes 1991:260).

This has happened, Gary Haynes (1991:260, 262) argued, with proboscidean site interpretations; they are good stories, not knowledge about the past, that have been proclaimed as fact and have become folk wisdom and myths about the past. In his review of both North American and Old World mammoth "kill" sites (G. Haynes 1991), he discovered that most conclusions suggesting that the remains were a result of active hunting had been actually based upon mere plausibility. For example, he discussed how "archeological stories" had been devised to accommodate large features of mammoth bones in late Pleistocene sites in central and eastern Europe (G. Haynes 1991:208). The dramatic image of mammoth-hunting specialists living during the Upper Paleolithic in the cold steppes of central Eurasia has become firmly established in Old World archaeological thought, despite its being based on a very selective sample (G. Haynes 1991: 214). In reviewing various sites and data, Gary Haynes (1991: 214) argued that the lack of kill and butchering sites, and the archaeological data itself, indicated that Paleolithic cultures of northern Eurasia had been actually subsisting on numerically more abundant animals in their home ranges, and had been only opportunistic utilizers of mammoth. Soffer (1993) made similar arguments, citing evidence which suggested that it was not only the hunting of mammoth which accounted for the presence of the great amounts of mammoth bone at many Upper Paleolithic sites in central and eastern Europe, but also the collection of mammoth bones from natural bone accumulations. The romance of hunters who lived inside structures made from the bones of their prey is exciting and tends to be accepted without question (G. Haynes 1991: 216).

The development of the Paleoindian big game hunting model has followed along similar lines. Sparse data were interpreted as evidence indicating big game hunting, and this interpretation was transformed into a truth or knowledge of the past. In essence,

with time, the Paleoindian big game hunting model began to take on a reality of its own. Throughout the entire development of Paleoindian studies, the hunting interpretation was rarely, if ever, questioned. Archaeologists never entertained any doubt that the famous Clovis sites were anything other than true kill sites (G. Haynes 1991:311). Essentially, the Paleoindian big game hunting model was and has been perpetuated and sustained by tautological arguments. If new data somehow did not fit this model with regard to either subsistence or dating, then immediately researchers would question the reliability and integrity of the data (see related discussion and similar claims in Dincauze 1984 concerning the debate over the case for Pre-Clovis occupations in the Americas), or else attempt either to force or selectively choose the data to fit the preconceived idea that hunting had been the dominant emphasis in subsistence. For example, as noted by Gero (1993:34), after the excavation of the Paleoindian site of Lindenmeier (Roberts 1935), the recovered data seemed to suggest a much wider range of tools and fauna than had been interpreted previously from Paleoindian mammoth and bison kills. However, interpretations still seemed to focus exclusively on the centrality of meat and game for Paleoindian existence (e.g., see Wormington 1957:35, as cited in Gero 1993:34, and her focus on the artifacts and their supposed usefulness in shaping weapon shafts, butchering, and preparing hides). In another example illustrating the molding of data to fit preconceived ideas, Gary Haynes (1991:311) noted that there existed an a priori theory that humans who had killed elephants would leave behind a few tools, tools that would only be expected to be found with bones of animals if those animals had been killed or used in some way. All facts about Clovis sites and the fossil record have been expected to fit this theory, and if not, then are often forced into place by "paradoxes and subtleties" (G. Haynes 1991:311).

Thus, the notion of big game hunting Paleoindians had become reality, accepted without critical evaluation as a consequence of over-interpretation of the sparse data, which, as Gary Haynes (1991:205) maintained, is simply an "exercise in making one story plausible at the expense of other stories." Not only Paleoindian models, but also other archaeological and paleontological interpretations have frequently developed into "myths" about the past, as noted by Binford (1981), who focused on the myths that had been generated by archaeologists through the interpretation of faunal materials; by Bryan (1991), who discussed how the "Clovis first" model had become a myth; and by Eiseley (1945, 1946), who examined how the myth of the recent survival of mammoth in the New World had developed in the last half of the eighteenth and early part of the nineteenth centuries.

Landau (1984) made an interesting connection between evolutionary schemes and stories or narrations. She noted that many of the models of early hominid evolution can be seen to follow the same structure as that of the form of the traditional hero myth, with ancestral hominids living in the trees and struggling to reach the ultimate goal of leaving the trees and becoming human. Parallels can be seen in Paleoindian interpretations, with Pleistocene hunters struggling to overcome the harsh Pleistocene environment and colonize the new continent by hunting large Pleistocene beasts, eventually so successfully that they drove them to extinction. Landau (1984:262) argued that seldom do anthropologists and other scientists recognize the extent to which they use narrative in their thinking, communication of ideas, and in their scientific theories. The idealized image of science as the sophisticated, objective, unbiased search for the "truth" is just that, idealized. In reality, science is storytelling of a special kind (Eldredge and Tattersall 1982:1).

As Trigger (1989a:408) noted, there is always a temptation to leap to conclusions in the absence of sufficient data, proper methods of interpretation, and adequate analysis. Especially if the interpretation is seen as common sense, the archaeologist may be unaware of his or her assumptions and poorly tested explanations. This situation often allows interpretation of archaeological data to survive even though the theoretical or factual basis has been discredited (Trigger 1989a:408). Concepts and models become truths and facts, as is the case with the Paleoindian big game hunting model. Many archaeologists have taken the hunting interpretation, transformed it into a truth, and have supported it so strongly that it has blinded them to its weaknesses and inconsistencies.

Discussion: Influence of the Social Context

It is clear that the social context in which archaeologists operate influences to some degree archaeological research interests and interpretations. As discussed in Chapter II and in more detail later on in this chapter, gender models tend to reconstruct male and female roles in the past much as they are stereotyped today; that is, males are seen performing more public, productive, and far-ranging tasks, while females practise a more narrow range of passive, home-oriented tasks (Gero 1985:344). As Conkey and Spector (1984:7) noted, and as illustrated previously in Chapter II, the "Man the Hunter" model outlined by Washburn and Lancaster (1968) clearly resembles contemporary gender stereotypes. Gero (1983:53, 1985:344) even suggested that the same sexual roles are visible in the field of North American archaeology, with the archaeological enterprise being dominated by white, middle class males. In an examination of the structure of the

modern North American archaeological research community and how researchers are forced to follow established paradigms, Gero (1993:36-38) argued that women tended to be excluded from Pleistocene lithic and faunal analysis, having little access to both knowledge production and unexamined Paleoindian materials because fieldwork was dominated by a few males. According to her, the archaeological community and the old-boy, male-dominated networking system, by seemingly supporting women-at-home and discouraging their entry into the field, reflected the idealized roles of man-the-hunter and woman-at-home (Gero 1983:53).

However, it must be noted that the number of early Paleoindian sites and consequently the amount of Paleoindian archaeological material is rather small relative to later North American prehistoric sites. Moreover, there have been a number of female archaeologists (e.g., Dena Dincauze, Sally Greiser, Ruth Gruhn, Cynthia Irwin-Williams, Eileen Johnson, Ruthann Knudson, Marie Wormington) who have successfully and intelligently dealt with North American Pleistocene and Paleoindian archaeological research, and who are well respected for both their field work and academic writings. But there is still the impression that any Pleistocene/Paleoindian researcher must follow established paradigms (i.e., functional, processual, and environmental focuses) to gain access to Paleoindian data, and that the access and acceptance is still controlled by a network of a select group of archaeologists. In other words, the study of Pleistocene big game hunting has become a high-prestige research niche (Gero 1991a:100), with a tendency in some cases to favour those researchers following a functional and environmental approach.

IMPLICIT ASSUMPTIONS AND PALEOINDIAN MODELS: AN INTRODUCTION

From the preceding discussion, it is apparent that preconceived ideas, prevailing paradigms, and the current social and ideological context, while not totally blinding archaeologists, greatly influence how they interpret data, pose questions, and ultimately attempt to answer those questions. In this next step in deconstructing the big game hunting model, I will expose in more detail the numerous implicit and untested assumptions and questionable premises underlying Paleoindian models emphasizing the centrality of big game hunting. It will be necessary in several instances in this chapter to introduce the broader context of Plains archaeology in order to illustrate how, from where, and in what context these models and assumptions derived. As in evolutionary schemes (see Lewin 1987:44), these Paleoindian models tend to be dominated by theoretical assumptions largely divorced from the data, many of which have been part of

the entire Paleoindian mind-set since the Folsom discovery and early interpretations; in effect, these assumptions have resulted in the continuing dominance of the big game hunting interpretation for Paleoindian data. A similar case exhibiting striking parallels to the development of the Paleoindian big game hunting model is that described by Freeman (1979) for the Thule culture. Freeman (1979) noted that from the presence of whale bone at some Thule sites, archaeologists had interpreted Thule culture subsistence as emphasizing whale hunting. He argued, however, that this interpretation was questionable because it had been primarily based on the acceptance of a generalized ethnographic model of North Alaskan Eskimo whaling society rather than upon actual interpretation of the archaeological data (Freeman 1979:283). The presence of whale bones used in housing did not necessarily imply whales had been actively hunted (Freeman 1979:281). Moreover, the few localized sites where whale bone was present, and from which the model was derived, were a nonrepresentative sample, and could not characterize all Thule sites over large areas and over time (Freeman 1979:279). Instead, Freeman (1979:281-284) illustrated how both archaeological and ethnohistorical evidence indicated that Thule culture was characterized by a more generalized subsistence base. The following discussion will outline very similar questionable assumptions and premises for the Paleoindian big game hunting model.

Fluted Points are Hunting Weapons

The belief that fluted points were weapons used in hunting game originated early in Paleoindian studies, and was pervasive throughout subsequent interpretation of Paleoindian data, whether stated directly (e.g., Cook 1925:460; MacGowan 1950:224; Sellards 1952:60; Wormington 1949) or implied (e.g., Howard 1935:128). More recent interpretations have continued the support for this assumption, and thus have played a major role in sustaining the big game hunting model. Frison (1987:184) noted that the presence of Clovis projectile points in mammoth carcasses was strong evidence for their use in killing the animals. Similarly, Wilmsen (1974:105) noted that "a point found at Lindenmeier in the neck vertebra of a bison is good inferential evidence that these were effective weapons." Despite Saunders' identifying the big game hunting model as possibly more a fabrication than actual fact, he too supported the assumption that points had been hunting weapons.

To call people of the Clovis Tradition "elephant hunters" seems to anticipate their major activity, and this has been done by researchers since the remains of mammoths were

first found associated with *tools of the hunt*. Closer examination being done by a number of today's researchers demonstrates that this may be more our own imaginative construction, rather than a true characterization of the Clovis lifeway itself. (Saunders 1978/79:8; emphasis added)

However, as Kehoe (1992:28) noted, the practice of labelling bifacially flaked, symmetrical pointed stone artifacts as projectile points is a "good example of archaeological folklore." Despite indications from studies of lithic reduction processes and use-wear analysis, which suggest that many of these projectile points were actually used as knives or were reworked implements, they continue to be given the label of projectile point (Kehoe 1992:28). For example, Odell (1981) discussed several projectile point wear pattern studies (e.g., Ahler 1971; Greiser 1977) that had illustrated that many of these so-called points did not show traces of wear interpretable as having been caused by use as armatures. Instead, in these studies, the morphological category "projectile point" actually served as a multi-functional tool in killing, butchering, skinning, and other activities (Odell 1981:324). Specifically with regard to Paleoindian projectile points, Eileen Johnson (1991:227) noted in an analysis of Clovis points from several Southern Plains sites, that several points had impact scars on the tip indicating use as a weapon, while other points had the lateral edges and/or tip reworked as well as additional damage that indicated use other than as a weapon. This interpretation clearly indicated that the Clovis point was, in some cases, at least a dual-function tool (as a weapon and for use in butchering), if not a multi-functional tool.

The label "projectile point" has been derived from the morphology of the artifact that links into the whole paradigm "hunter," who is considered to be male (Kehoe 1992:28). Perhaps these items actually had multiple functions, were considered the focal point of the tool kit because of their multipurpose nature, and were frequently used as tools of women (Johnson 1991:227; Kehoe 1992:28). Typological terms are descriptive categories only, and have no necessary relation to tool function (McBrearty and Moniz 1991:75; see also Odell 1981). Ethnographic studies of modern people who use stone tools have demonstrated that the makers' functional tool categories seldom match the typological categories of archaeologists (see McBrearty and Moniz 1991:75 for references; see also Odell 1981:323 and his discussion relating to the lack of correspondence between the form and function of stone tools among numerous ethnographic groups). It is evident that the assumptions that fluted points were used as weapons to kill big game, and that the Paleoindian tool kit reflects a focus on hunting, need to be reevaluated in terms of experimentation and use-wear analysis.

Bone Beds and Faunal Remains are the Result of Hunting

Both Gary Haynes (1991:205) and Todd (1987) implied that the evidence for Paleoindian hunting and processing of proboscideans and bison was apparently far less substantial than had been previously claimed, due to the fact that Paleoindian archaeologists in the past, and still in the present, have had a tendency to assume that *all* faunal remains found in association with or near stone tools (primarily projectile points) were the result of active hunting by humans. However, the mere existence of stone tools in a bone bed demonstrates neither that active hunting occurred, nor, for that matter, that the patterning evident within the bone assemblage was solely the result of human activity. Rarely is consideration given to taphonomic studies of the bone deposits, and the possibility of scavenging or natural causes as factors in bone accumulation. As Todd (1987) indicated, bison and mammoth bone beds are not fossilized events. A wide range of potential post-occupational processes may have modified the faunal remains (Todd 1987:260). In fact, such "kill sites" might have been created by time averaging, deposition, mixing of non-cultural and cultural events, and multiple events (G. Haynes 1991:260-261; see also related discussion in Dincauze 1984:306-307 with regard to the importance of taphonomic studies for the evaluation of Pre-Clovis bone assemblages and bone "tools").

Soffer (1993) noted similar problems relating to interpretations concerning central and eastern European Upper Paleolithic sites. She argued that, for both North American and Upper Paleolithic sites, the assumption was always made that associations of mammoth bone with cultural inventories reflected cause and effect; that is, human action was solely responsible for the accumulation of the dead mammoths. Consequently, these assemblages were not subject to as rigorous taphonomic and paleontological research as those assemblages that lacked evidence for human action (Soffer 1993:32). In previous work (Soffer 1985), she illustrated that mass deaths generated by natural processes could and did yield catastrophic age profiles; thereby, she challenged the assumption that catastrophic profiles could have resulted only from human driving and killing of whole herds (Soffer 1993:33-34). She also pointed out that many of the mammoth bones at Russian Upper Paleolithic sites were characterized by varying stages of weathering and differential degrees of carnivore and rodent gnaw marks. This evidence suggested different ages of death for some of these mammoth (Soffer 1993:37). Evidence for intensive utilization of animals species other than mammoth led Soffer (1993:38) to question the assumption that mammoth had provided an abundance of meat at these sites.

In view of these observations, Soffer (1993) thus offered an alternate scenario: natural mammoth bone cemeteries, which provided an abundance of a significant raw material, had often attracted human settlements, and therefore the mammoth bone present at many of these Upper Paleolithic sites most likely represented both collection from natural bone accumulations and the results of hunting.

During the 1970s and 1980s, taphonomic and actualistic studies became common to determine possible factors responsible for bone accumulations in early hominid sites in the Old World (e.g., Binford 1981; Blumenschine 1986; Brain 1981; Bunn 1986; Bunn et al. 1988; Hill 1984). Not until very recently have similar studies begun to deal with this issue with regard to New World late Pleistocene sites (e.g., Carlson and Steele 1992; Fisher 1987; Fisher 1992; G. Haynes 1991; Todd 1987; Todd and Frison 1986). The earliest of these taphonomic studies tended to focus on eastern Paleoindian sites, in which no direct association between the faunal remains and stone tools was evident. Taphonomic studies were and, still in some cases, are often considered unnecessary at sites that demonstrate an apparently clear and obvious association between bone remains and stone tools, because it is immediately assumed that all the faunal remains are the product of a cultural event (i.e., hunting). As Hofman and Ingbar (1988:343) noted, many of the animal remains reported from Folsom sites have not been described with enough detail to allow assessment of their cultural use or modification, because it was assumed they had all been the product of hunting. This situation is somewhat true for several Clovis mammoth sites as well (e.g., Haury et al. 1959).

Gary Haynes (1991:263), in a taphonomic examination of the fossil record based on actualistic studies, concluded that most North American mammoth "kill" sites failed to yield unequivocal proof that humans had slain proboscideans before processing the carcasses. He argued that Clovis samples were most similar to modern non-cultural bone assemblages, and did not look like ethnographically-butchered samples of elephants (G. Haynes 1991:312). Instead, he suggested that costs involved in hunting proboscideans normally had been far too great for such an economic activity to have been routine in Pleistocene/Holocene epochs (G. Haynes 1991:314). However, during the late Pleistocene, when proboscideans were under great environmental stress, their appeal as prey increased. Only after humans had found this resource, which was becoming vulnerable due to environmental stress, did they opportunistically spread their worldwide range into northern regions (G. Haynes 1991:284). Thus he argued that large Clovis mammoth assemblages were actually the remains of die-offs exploited by people who had made fluted points; that is, the mammoths were either dead or dying when encountered (G. Haynes 1991:314). Late Pleistocene hunter-gatherers were not mammoth specialists

who had caused the disappearance of mammoths because of their superiority as big game hunters, but rather they had exploited the massive die-offs of environmentally stressed mammoths (G. Haynes 1991:284). While his conclusions are more descriptive and speculative than anything else, and his model implies that Paleoindian populations could not have actually coped economically with hunting mammoth, Haynes' taphonomic studies raise some interesting questions.

In another taphonomic study, Daniel Fisher (1987) compared the distribution of sex, age, and season of death within and between samples of so-called butchered and non-butchered mastodon individuals to evaluate the relative incidence of hunting and scavenging associated with Paleoindian utilization of mastodons in the Great Lakes region during the late Pleistocene. Because the patterns between the butchered and non-butchered samples were different, he argued that this difference constituted strong support for procurement of all butchered carcasses by hunting (Fisher 1987:359). However, it is questionable whether certain patterns such as catastrophic age profiles and autumn deaths, which characterized Fisher's butchered assemblages, are indicators exclusively of active hunting (see Soffer 1993 and discussion earlier in this chapter). Moreover, criteria used to delineate between butchered and non-butchered samples, such as cut marks and patterns of bone distribution, are certainly not entirely exact, foolproof, and unquestionable indicators.

More recently, John Fisher (1992) attempted to seek diagnostic attributes and patterns in the Lamb Spring late Pleistocene bone assemblage that would distinguish reliably between human activities and nonhuman processes and agents. He used experimental and actualistic research on elephant butchering in the Ituri forest of Zaire, but his conclusions were ambiguous. Human or nonhuman processes could have been responsible for the bone assemblage (see Appendix A).

Many interpretations of Paleoindian hunting, especially of bison, have relied heavily upon or are drawn directly from ethnographic or ethnohistoric cases and interpretations developed from Late Prehistoric Plains kill sites (Todd 1987:252). It is assumed that the role of Paleoindian kill sites was functionally identical to that of later documented North American Plains bison hunting groups, in which food processing and storage were important components (e.g., Frison 1978, Wheat 1972). However, in a detailed taphonomic analysis of New World kill-butchery sites, Todd (1987) demonstrated that these interpretations were, in actuality, very questionable. The Paleoindian data did not conform to these Late Prehistoric models (Todd 1987:228). He argued that bison bone from the Horner and Jones-Miller Paleoindian sites (Todd 1987) and the Hudson-Meng Paleoindian site (Todd et al. 1993) indicated that human activity

had been a limited component in the creation of patterns within the bone beds. These bone beds did not show any signs of intensive processing of meat carcasses as did Late Prehistoric ones; that is, Northern Plains Late Prehistoric bone beds were characterized by a greater degree of segmentation and dismemberment of anatomical units, whereas Paleoindian bone beds were characterized by the deletion of complete limb units (Todd 1987:259). Todd (1987) concluded that the Paleoindian goal was not storage, as with Late Prehistoric hunters; instead, the Paleoindian goal appeared to be concerned with food procurement and processing of meat for relatively short periods of time. The implication of this study, then, is that Late Prehistoric Plains kill and hunting patterns cannot be used as complete and exact interpretive analogues for Paleoindian patterns.

In the past, the association between artifacts and bones was considered sufficient proof of hunting and butchering. Now there is an increasing awareness of the need for detailed study of bone beds before reliable statements about past hunting, butchering, and ecology of prey can be made (Todd 1987:230). However, as Todd (1987) noted, it is ambiguous and difficult to define what constitutes evidence of human action with regard to Paleoindian bone beds. More actualistic research is needed to help determine more confidently what faunal remains are the result of human activity. As well, archaeologists must realize that a plausible alternative to active predation is the scavenging of animals that died from natural causes such as starvation; moreover, scavenging and predation need not be viewed as mutually exclusive strategies (Fisher 1992:52).

Adequate Sample of Paleoindian Sites

A major assumption sustaining the big game hunting model is the belief that the Paleoindian archaeological record is an adequate representative sample from which generalizations and interpretations about Paleoindian lifeways can be derived (e.g., Hester and Grady 1977). There is a failure to realize that the big game hunting model was and is based on only a few sites, primarily from the High Plains and dominated by kill and butchery localities. Studies based on the relatively few Paleoindian sites and sparse data have often tended to result in very broad, basic, and simple interpretations. Generalizations based on evidence from a very few Paleoindian sites are made and then applied to Paleoindian occupations in a particular region or across the entire North American continent regardless of environmental differences (e.g., Frison 1982a, 1987, 1990a, 1990b; Haynes 1980, 1982; Kelly and Todd 1988). For example, Frison's (1976, 1982a, 1987:210) belief in the use of frozen meat caches as a Paleoindian winter survival strategy was originally based on the presence of a few mammoth bone piles at

the Colby site and on ethnographic analogy with Inuit practice. This interpretation was then "applied" to other Northern Plains Paleoindian sites; however, the data are far from substantial and conclusive. It is obvious that many recent interpretations are still plagued by a concentration upon the incomplete archaeological record (e.g., Greiser 1985; Haynes 1980; Kelly and Todd 1988). Many archaeologists, however, have explicitly recognized this problem of sparse Paleoindian data, often stating that the data may support their models but do not necessarily provide a rigorous test of them (e.g., Bamforth 1988; Greiser 1985).

This issue of adequate, representative sampling touches upon the whole aspect of preservation. While there have been numerous surface finds of early Paleoindian projectile points across the continent, there essentially are relatively few well preserved and undisturbed early Paleoindian sites. Moreover, as Albanese (1977:28) stressed, the sample of Paleoindian sites available to the archaeologist may not necessarily be representative of the types of sites most commonly utilized by Paleoindians in the past, but instead represents those most easily preserved. It often takes a unique sequence of geologic events to preserve a site; in simplest terms, archaeological sites are preserved in areas in which sediments accumulate, and are destroyed in areas where sediment is removed (Albanese 1977:28). Furthermore, there are possibilities for preservation or destruction of archaeological materials by natural forces in Pleistocene environments for which there are no analogues available today (Dillehay 1989:32). Only after there was extensive natural and human disturbances of the land surface did the discovery of sites of early "big game hunters" including Folsom, Clovis, Hell Gap, and others occur (Wedel 1982b:142). This situation suggested to Wedel (1982b:142) that there had been drastic changes in environmental settings since Paleoindian times which had possibly contributed to the "negative" results of archaeology in the past years.

Perhaps a high number of kill sites have been preserved and subsequently exposed because of their location in or close to river channels, bogs, ponds, and arroyos, whereas campsites and other activity sites located farther from these features on flat open areas or terraces are still covered by many metres of deposits, or for that matter, were exposed to weathering and more destructive factors and environments unfavourable for preservation. Moreover, it is also possible that the nature of Paleoindian activities was very different from that of later and more recent native populations. Archaeologists should therefore not expect similar types of sites and remains or a similar degree of visibility for the Paleoindian archaeological record. Specifically for Clovis kill sites, Meltzer (1993a:296) even suggested that perhaps the problem with preservation and detection of these early Paleoindian sites was not as severe as most believed. He argued

that there were thousands of *non-archaeological* terminal Pleistocene fossil locations of extinct megafauna throughout North America in areas where Clovis artifacts have been found, and one would expect more direct associations if Clovis groups and extinct megafauna had been characterized by a predator-prey relationship (Meltzer 1993a:296). Thus it may be possible that archaeologists are not finding the Clovis kill sites because they are just not there, not because of preservation factors (Meltzer 1993a:296).

As Gary Haynes (1991:314) maintained, the sites that did enter the fossil record must be regarded as biased samples of the types of decisions and the range of behaviour of not only Clovis peoples but all Paleoindian and Plains populations. However, this factor is rarely, if ever, taken seriously into consideration; the result is an overemphasis on hunting, killing, and seasonality studies in Plains and Paleoindian studies (e.g., Davis and Wilson 1978; Frison 1978, 1991a; Reher and Frison 1980). Landals (1990:123) argued that most archaeological interpretations tended to focus on large communal bison kill sites, while evidence for small-scale hunting either was not recognized or was considered irrelevant, and thus often was not reported. She specifically targeted Frison's overemphasis on large-scale communal hunting strategies, and his downplaying of historic, ethnographic, and archaeological evidence for small-scale hunting strategies such as running animals into water, snowdrifts, and onto ice (Landals 1990:147). Despite Frison's (1991a:155) statement that small group and individual hunting probably resulted in more animals killed than the more spectacular communal kills (corrals, jumps, traps), he and other archaeologists still tend to focus on the more highly visible communal kills with their tremendous bone beds. This focus is most likely due to the underlying belief that the larger the site, the greater the amount of data available for interpretation, and thus the greater importance of the site. This importance is true to some extent; however, the continual emphasis on large sites and disregarding of small sites has no doubt resulted in a skewed picture of prehistoric subsistence, and, moreover, perpetuates the belief that communal, big game hunting was central to Plains lifeways.

This focus on larger sites is especially apparent in Paleoindian studies. Hofman and Ingbar (1988:337) pointed out that the Folsom occupation of the Northwestern Plains was best known primarily through reports describing camp and kill/butchering localities. In actuality, the fact that the complete variety of Folsom sites has not been very well documented has resulted in a view of Folsom period activity that is heavily skewed and not reflective of the true diversity of Folsom site settings (Hofman and Ingbar 1988:338-339). While it is assumed that limited activity sites of Folsom age are present on the Northwestern Plains, documentation of these sites is extremely rare (Hofman and Ingbar 1988:339). Small Folsom sites, either those on the surface or those with few specimens,

are generally considered of secondary importance and rarely reported, while multi-component sites with occurrences of Folsom artifacts are usually attributed to scavenging by post-Folsom people (see discussion in Hofman and Ingbar 1988). In discussing the Adobe site in eastern Wyoming, a Folsom hunting overlook site with a small surface assemblage, Hofman and Ingbar (1988:341) argued that archaeologists must begin to document these small temporary or limited activity sites to gain a better appreciation for the diversity of Folsom period activities on the Northwestern Plains. Similarly, Kornfeld (1988) discussed the Rocky Foolsom site, which was characterized by a small Folsom assemblage, and its implications for Folsom cultural dynamics. He argued that a different picture of Folsom lifeways would emerge with the documentation and analysis of other such small sites, that is, a picture different from that of the bison-dependent subsistence strategy view (e.g., Agenbroad 1978; Bamforth 1985; Frison 1978; Johnson 1978; Judge 1973; Wheat 1972) that has dominated Paleoindian interpretations since the Folsom discovery in 1926 (Kornfeld 1988:216).

In essence, because the bison utilization system overshadows all other cultural processes archaeologically, interpretation is even more biased toward large game procurement (Kornfeld 1988:212). Paleoindian bison as well as mammoth "kill" sites are more visible and spectacular, and considered more important for documentation and analyses. Further contributing to this view is the fact that the actual by-products of hunting are better preserved and thus receive greater attention from archaeologists as compared to plant gathering and related activities (see Keene 1981:188 for a similar statement with regard to Late Archaic Great Lakes archaeology). Moreover, frequently interpretations relating to hunting-gathering populations, and specifically Plains hunter-gatherers, are underlain by the implicit assumption that meat was their most favoured food, and that the highest prestige was thus conferred on the hunter (e.g., Friedl 1975:13; Frison 1978). However, this assumption is too generalizing and distorting. Grinnell (1962:181) noted that, to the Blackfoot, meat had been the only food they cared for, yet he and McClintock (1992) described the great variety in the diet of the Blackfoot (Grinnell 1962:203-207), the numerous ceremonies and prayers that had been performed to ensure good harvests of berries (Grinnell 1962:277-278), which had been a highly desired resource (McClintock 1992:466), and the importance of berries and other vegetable foods in ceremonies and gift exchange (McClintock 1992:367, 408, 467). There is clearly an awareness that plant foods probably played some role in prehistoric hunter-gatherer diets, but because there is a lack of solid empirical proof for plant use, archaeologists tend to neglect and disregard the possibility of the use of these food items in favour of a focus on more visible hunting activities. As Meltzer (1993a:298) noted, for Paleoindian

archaeology, the real bias lies in the fact that, to date, the archaeological record badly under-represents plant gathering, and is characterized by highly visible megafaunal kill sites.

Common Views of Hunting

Archaeological interpretations, including many of those pertaining to Paleoindian data, tend to glorify and perceive hunting as challenging and a conquest over nature and animals which is nearly always successful, with the focus frequently placed upon the necessary but extraordinary skills that hunters, assumed to be exclusively males, needed in order to be successful in bringing down game (e.g., Frison 1991a:139-143). Frison (1993:241) even implied that the nature of hunting could not be analyzed solely by observation on the part of the archaeologist, but had to also involve participation and acquisition of some appreciable measure of expertise in order to obtain a more complete understanding of weaponry and prehistoric hunting. This claim essentially excludes from the debate all those academic researchers who have not had direct experience with hunting. Thus, only certain individuals such as Frison, whose background as a rancher and hunter has given him practical experience especially with bovine behaviour, can speak with any authority and provide valid interpretations.

Frison (1991a:140-141) stated that "most animals stand little chance when pursued by an accomplished hunter....the ultimate fate of the large mammals is never in doubt when pursued by human predators." While hunting was no doubt hard work at times and, as illustrated for the Valley Bisa of Zambia (Marks 1976) and the Kutchin and Koyukon peoples of Alaska (Nelson 1973, 1983), required highly developed and specific skills including considerable and detailed knowledge of the territory and animal behaviour and properly designed equipment and expertise in using that equipment, at times it was probably somewhat unexciting and routine. For many hunting-gathering societies, hunting was likely very much different from the western image of big game trophy hunting that frequently permeates anthropological and archaeological interpretations. In fact, as suggested by numerous ethnographic and present day groups, hunters frequently have attitudes of reverence, gratitude, and respect for the animals they capture. For example, among the Mistassini Cree, hunters had to show respect to game animals and avoid offending them, in order to ensure the continued appearance of game. They showed this respect by following a whole series of taboos, rules, and rituals with respect to pre-hunt preparations, the actual hunting, the announcing and displaying of the kill, the butchering of the animal, the eating of the products, and lastly, the disposal of the bones

(Tanner 1979:108-181). In another case illustrating respect for animals, when Blackfoot individuals caught an eagle, a piece of pemmican would be placed in its mouth so that its spirit would tell other eagles that people were feeding it and treating it well (Grinnell 1962:240). Nelson (1983) also provided numerous examples of the many rules and taboos the Koyukon peoples of Alaska followed to show respect to killed animals and harvested plants.

While the western anthropological model has defined "hunting" as a primarily male-dominated event involving the search and killing of animals by means of material technology, recent ethnographic studies have clearly indicated that many hunter-gatherers extended their definition of hunting well beyond the physical act of slaughter (Bodenhorn 1990:65). In actuality, hunting is a composite of behaviours: preparation of tools and weapons, gathering information, planning, discussion, spiritual observances, searching, encountering, stalking, pursuing, bringing down, killing, primary and secondary butchering, distribution, and processing (Bodenhorn 1990:55; Mithen 1990:111; Zihlman 1981:105). For example, as Nelson (1973) demonstrated for the Alaskan Kutchin, hunting involves more than just the killing event. In fact, it was only after an animal was killed, that the "real work" (i.e., butchering, caching, and transporting) began (Nelson 1973:98). Cree hunters (Tanner 1979:109) treated killing as a sequence of activities and a cyclical process including information gathering, the actual killing event, and the distribution of the meat. In practice, the process of killing animals for the Mistassini Cree had to be preceded, usually by several days and sometimes up to a year or more, by the process of gathering information about the presence and activities of game animals (Tanner 1979:133). Similarly, Marks (1976:114-126) demonstrated that hunting for the Valley Bisa of Zambia was not only a subsistence activity, but also a social strategy by which hunters competed for leadership positions and an active process and integrative system involving gathering information, stalking, killing, retrieval, butchering, distribution, and consumption of the meat. Moreover, at any point in this process, various elements were considered necessary either to hunt with success or to placate animal spirits, such as performing elaborate rituals, obtaining and using powerful magics, calling on ancestral spirits for assistance, honouring duties and obligations to kin, and, for the hunter and his kin, especially his wife, following a multitude of restrictions in behaviour (see Marks 1976).

As illustrated by ethnographic studies (e.g., Marks 1976, 1982; Nelson 1973, 1983), it is apparent that a large number of factors had to be considered by hunter-gatherers when hunters decided to hunt. Hunting decisions were influenced by the time of day, by concerns about transporting meat back to camp, by the need for food and other

animal products, by the desire to fulfill social obligations and reaffirm social relations, or even by supernatural concerns, since for many hunter-gatherers the spiritual realm was often inseparable from the natural world (see especially Nelson 1983). Among the Iñupiat of the Alaskan North Slopes, as among Northern hunters in general, hunting was and is still considered a sacred act which involved numerous rituals and correct behaviours for success (see Fienup-Riordan 1990; Turner 1990). It was the duty of the wife ritually to attract the animals; moreover, the animals only "gave themselves" to the men whose wives were generous and skillful. Women were thus classed as hunters by Iñupiaq men (see Bodenhorn 1990:58), and the interdependence of men and women in both hunting rituals and survival was acknowledged and appreciated (Bodenhorn 1990:65). Similarly, on the Northern Plains, historic native groups used *Iniskims* or buffalo stones in elaborate rituals and ceremonies for the purpose of calling the buffalo (see discussion in Reeves 1993). It is apparent that hunting bison for more recent Plains societies involved more than the simple act of killing, but also required the participation of both men and women in ritual activities for success.

Although symbolic and ritual aspects associated with hunting may be difficult to identify in the archaeological record, there is some evidence suggesting the possibility of ritual activity associated with hunting at a late Paleoindian site in Colorado. At the Jones-Miller bison kill and processing site in Colorado, a miniature Hell Gap point, a bone flute, and butchered canid remains were discovered in association with a post mold that was located near the centre of the butchering area. Stanford (1978, 1979) interpreted these remains as representing a "medicine post" used by a hunt chief and items offered for a successful hunt, similar to that which characterized the operation of historic bison pounds. Although using this analogy with historic groups to interpret Paleoindian archaeological remains directly could be somewhat questionable, it is clear that ethnographic and ethnohistoric studies are making archaeologists reconsider the Euro-American model of hunting, broadening the traditional definition of hunting to include a wider range of activities, both technical and symbolic, often in which the interdependence of men and women was fundamental (Bodenhorn 1990:55, 58).

More specifically, in a hunting-gathering economy, women would be intimately involved in and would play essential roles in the entire hunting process (e.g., Brumbach and Jarvenpa 1994). First, women would assist in the preparation of the equipment required for hunting by locating and transporting the necessary raw material to make the items, and even by participating in certain stages of the actual manufacturing process, especially if these items were tools that they themselves would use. Secondly, women would make important and vital contributions with regard to gathering information about

the location and condition of game animals, information that would be crucial to the planning of the hunting event. As noted above, women would also be intimately involved in ritual observances necessary to ensure the success of the hunt. They may also at times assist in the searching, stalking, and pursuit of game, and even the actual killing event. If involved in or present at the actual kill, women would conduct primary butchering, and most certainly would be involved in both transporting the meat back to camp and the secondary butchering of the animal. The distribution of the meat and other products from the kill would involve the participation of women, especially with regard to fulfilling social and kin obligations. Following the distribution of the meat and non-meat items, women would play a major role in processing and preparing the meat and non-meat products for consumption and use. Lastly, of course, women would be intimately involved in distributing these processed food and non-food products, as well as being involved in the actual consumption and use of these items. Clearly, in a hunting-gathering economy, even one that emphasizes hunting, women would play essential roles in the subsistence activities of their group.

Related to the common view of hunting is an underlying assumption, not only evident in the Paleoindian big game hunting model but in many other interpretations of prehistoric hunter-gatherer adaptations, that hunting and gathering are mutually exclusive events. The activities of hunting and gathering are divided into black and white categories, and are assigned to men and women, respectively; however, this differentiation between the two activities may not necessarily be reflective of the actual situation. In fact, the activities of hunting and gathering exist more on a continuum and are composed of multiple and interconnected tasks and stages that are not necessarily so dichotomized and separate, but rather more accurately represent a continuum of food and resource acquisition shared by male and female, young and old.

This problem of dichotomizing hunting and gathering exists in part because, first, archaeological beliefs are influenced by present-day views on hunting, and, second, as Estioko-Griffin and Griffin (1981:141) mentioned, the definition of hunting is not clear, and often there is an ill-defined separation of big game hunting from small game hunting. For example, female Aborigines in western Australia hunted kangaroos and lizards, but often this activity was referred to as gathering or collecting (Estioko-Griffin and Griffin 1981:141). As Estioko-Griffin and Griffin (1981:141) noted, classification seems only to enforce artificial boundaries. Moreover, many small animals and big game as well can be trapped or snared (see Nelson 1973:109, 116 for accounts of the Alaskan Kutchin snaring moose and bear in pre-contact times). These activities are relatively distinct from hunting activities. The division between hunting and gathering further blurs when it is

considered that some northern hunters have been known to eat moose or caribou stomach contents, which consist of partially digested or fermented plant remains (Hearne 1971:316-318; Schweger et al. 1982:437). Thus the distinction between and the association of hunting with animals and gathering with plants does not necessarily hold true in all cases. Even the widely accepted label "hunter-gatherer" is set up in dichotomous, oppositional terms and, thus, obscures the complementary and overlapping nature of the activities performed by these societies. Throughout this study, reference is made to "hunter-gatherers" and "hunting-gathering" societies, but it is realized that these terms have underlying connotations that are somewhat distorting. Archaeologists and anthropologists must recognize that these terms are loaded and that a new term is needed, one that more accurately reflects the continuum of hunting and gathering activities.

Obviously, then, for hunting-gathering populations, both hunting and gathering were and are activities characterized by a multiplicity of interconnected and interrelated stages and tasks. It is evident that the view that dichotomizes hunting and gathering, and sees hunting strictly in terms of the killing of animals by men (e.g., as exemplified by Ehrenberg 1989) tends to create invisible and non-participating women. Instead, by perceiving activities such as hunting and gathering as having multifaceted and interconnected natures, by viewing artifacts, especially those that have been typically associated solely with the realm of hunting, in relation to non-hunting tasks and realms as well, as Kornfeld (1988:214-216) has done for a small Folsom assemblage from the Northwestern Plains, and by viewing hunting more as a process, as suggested by Kornfeld (1991:3), that involves many people, many decisions, and many stages, one will gain several advantages. First, the visibility of women and their contributions to prehistoric lifeways and cultural processes will be increased (Kornfeld 1991:3). Second, archaeologists will be able to visualize the dynamic interrelations of men, women, and children who were involved in the hunt. Last, and more important, viewing hunting as a process shared by women, older children, and men, beginning with pre-hunt preparation (whether ritual, technological, or the gathering of information) and ending with the butchering and distribution of the meat, no doubt will provide a more realistic representation of the past.

Group Adaptation to the Environment

The influence of New Archaeology, the systems approach, and its assumption that groups adapt to their environment is strongly evident in Paleoindian studies and models. "Adaptation" has characteristically been seen as a particular state that can readily

be achieved (Mithen 1990:8), with hunting-gathering populations and individuals adapting to changes in their external environment to maintain a homeostatic state. But as Winterhalder (1980:141) noted, adaptation is an easily misused concept. This emphasis on group adaptation results in a narrow, mechanistic, and functional view of prehistoric lifeways that lacks people and individuals. As Tilley (1990a:331) maintained, positivist science turns people into objects and subjects, thus all the better for control and manipulation. People are seen at the mercy of the environment or larger cultural system, and no consideration is given to individual actors making decisions, even though changes in human society recorded in the archaeological record are ultimately the result of people making decisions (Mithen 1990:1).

Instead, adaptation is better viewed as an active, dynamic process of becoming rather than as an ultimate goal, end product, or achieved static state of being (Mithen 1990:8). As Mithen (1990:8) noted:

It is of little value to suppose that people are engaged in activities which maximise their inclusive fitness since the world simply does not stand still long enough for them to achieve this.

Cultural-Historical and Functional Perspectives

From the very beginnings of Paleoindian studies, the cultural-historical emphasis on projectile points and their typology has resulted in the implicit assumption that points could define cultures, for example, the Folsom culture, the Clovis culture, and the Goshen culture. As Frison (1986b:136) similarly noted, it is possible that the relatively small total amount of early Paleoindian cultural material has contributed to this overemphasis on formed tools, particularly projectile points and their typology. With the New Archaeology, the emphasis was still placed on lithic tools, but with a more functional perspective. With this narrow focus on lithic tools, archaeologists tend to discount the possibility of the use of tools made of bone or other organic material. Moreover, it is often implicitly assumed that lithic tools were used exclusively for hunting and hunting-related activities (e.g., Bonnicksen et al. 1992:318; Hofman 1992; Ingbar 1992). Frison (1993:241-242) stated that the smaller size of the Goshen projectile point in relation to Clovis may have related to the demise of the mammoth and concentration on bison, perpetuating both this emphasis on projectile points and the earlier belief that point type and size relate to the kind of prey.

Connected as well to this focus on points is an emphasis and preoccupation with chronology of these various "cultures" and complexes (see Frison and his concern with chronological placement of the Goshen complex in Frison 1990a, 1990b), and the great reliance on radiocarbon dates as accurately reflecting their ages (e.g., Haynes 1993). There is still the occasional acceptance and rejection of radiocarbon dates based on whether or not they fit preconceived models and expectations; for example, Haynes (1993:223) rejected two radiocarbon dates from the Whipple site because they were not in line with other eastern sites. This focus on chronology and typology, and the belief that points delineated cultures (e.g., Frison 1978, 1990a, 1990b, 1991b; Haynes 1993) adds to the already mechanistic and de-peopled view of Paleoindian lifeways. For instance, both Frison (1992) and Benedict (1992) used projectile points as a major basis for interpreting Plains and Mountain Paleoindian populations as distinct and separate cultural groups. Little, if any, consideration was given to the possibility that functional concerns such as the different resource focus could have been responsible for the difference in projectile points rather than only stylistic and cultural factors.

Associated with this underlying concern with chronology and typology of Paleoindian points and cultures is the creation of numerous point types, as Bamforth (1991) noted. Moreover, because large communal "kill" sites tend to produce more projectile points necessary for chronological studies, priority is given to these more visible sites. However, as Bamforth (1991) recently noted, the focus on Paleoindian projectile points from communal kills may in fact be obscuring the full range of projectile point variation in form and technology, because supposedly only the best knappers made points for communal kills. This focus on both communal kills and projectile points and the assumption that points represent cultures may be actually masking cultural differences and variability over time and space, and providing archaeologists with a skewed and incorrect view of cultural dynamics.

The assumed uniformity of early Paleoindian assemblages across the continent (e.g., Haynes 1980, 1982; Kelly and Todd 1988) may, in fact, be partially due to this emphasis on typology and cultural-historical perspectives. Meltzer (1993a:304-305) argued that the apparent similarity may have resulted from the manner in which the assemblages were defined and classified, often using categories and types first described for the Paleoindian site of Debert. The apparent "similarity" that archaeologists (e.g., Frison 1978 and Bamforth 1988; see discussion in previous chapter) are seeing in the Plains archaeological record between Paleoindian and Late Prehistoric times also may be related to this pervasive typological and functional emphasis in Plains archaeology. Plains archaeologists tend to stress the similarities between early and late assemblages

primarily because of the assumption that a hunting focus on bison was the only effective way to survive successfully on the Plains. The premise that tool types and basic subsistence methods appear to be the same throughout Plains prehistory does not necessarily mean that all other aspects of society have remained identical. A focus on functional aspects and categories may be seen as the epitome of an objective science, but it has limited use in obtaining the necessary information for reconstructing total past lifeways. Tools, especially projectile points and lithic artifacts, comprise only a small part of the total adaptive strategies of a population; it is unrealistic to expect that these items, which are most often the majority of surviving cultural items in the archaeological record, will provide prehistorians with a complete view or true reflection of all aspects of past lifeways. But it is still not uncommon to see discussions and articles based almost exclusively on Paleoindian projectile point data (e.g., Hofman 1992) or consisting of detailed descriptions of sites and lithic artifact data with only generalized and brief discussions attempting to relate the data to the larger picture (e.g., Bonnicksen et al. 1992; Davis and Greiser 1992). While it is recognized that these detailed site reports are needed and constitute an important part of the archaeological database, the narrow emphasis on typology of artifacts and functional analysis of sites is no doubt preventing the consideration of the importance of other cultural aspects such as gender.

The Presence of Fluted Points Indicates a Big Game Hunting Lifestyle

Related to the practice of delineating cultures on the basis of projectile point types is the assumption that the presence of fluted points implies a big game hunting lifestyle (see especially, Frison 1992:329 and his assumption that the lack of diagnostic classic Plains Paleoindian projectile points in the foothill-mountains region is a consequence of the absence of large animal kill sites). This interpretation was initially applied to discoveries of fluted points in the eastern part of the continent despite differences in the nature of the tool and faunal assemblages. However, as Meltzer (1993a:304) noted, the presence of a single attribute such as fluting is insufficient grounds to claim that all groups possessing that attribute had been doing the same thing. Fluted points were only one part of the tool kit used in subsistence activities; they do not therefore necessarily represent, reflect, or correlate with a type of lifestyle. Artifact types are heuristic devices devised by the archaeologists, and thus cannot be equated without question to cultural groups or particular lifestyles. Artifacts are the product of complex factors involving human behaviour, so there can be no simplistic correlation between tool type and way of life.

The Use of Selective and Unquestioned Ethnographic Analogies

Introduction

The assumption that simplified analogies of both ethnographically-documented hunter-gatherers and the environment can be applied directly without question to Paleoindian data has been a major contributor to the development of and continuing dominance of the big game hunting model. Despite the recent accumulation of more detailed paleoenvironmental data for the late Pleistocene (e.g., Ruddiman and Wright 1987), some archaeologists have at times based their environmental reconstructions on older or coarser-grained paleoecological data which discount the diversity of rapidly changing Pleistocene environments, and provide a static and generalized environmental picture. One consequence tends to be an oversimplification of human responses to those environmental changes (e.g., Bamforth 1988; Greiser 1985; Kelly and Todd 1988; Martin et al. 1985) almost to the point of environmental determinism (e.g., Bonnicksen et al. 1987).

Similarly, many Paleoindian interpretations tend to rely upon selective and unquestioned analogies with modern or historic hunting-gathering groups and the common view of big game hunters (e.g., Frison 1978, 1990a, 1990b; Greiser 1985; Johnson, ed. 1977) that for so long has guided the development of Paleoindian models. For example, late Pleistocene hunter-gatherers are frequently considered comparable to cold-adapted hunter-gatherers in the arctic/subarctic steppe or tundra environmental zones, such as Inuit populations (but without the marine component), because of the supposed similarities in environment and focus on large game. Hester and Grady (1977) outlined the characteristics of a typical hunting-gathering society based on ethnographic accounts from Lee and DeVore (ed. 1968), and argued that Paleoindian data from the Llano Estacado supported this general analogy. However, generalized descriptions of this kind only mask the wide range of variation amongst contemporary hunting-gathering groups, and the potential variation that was present in the past.

Saunders (1990, 1992) used analogues of bison hunting by late Prehistoric and historic Plains Indians, and non-native hunting of elephant families to provide uniformitarian models for Clovis mammoth procurement in North America. Saunders (1980:96, 1992) even argued that game park culling of elephants was the best analogy for Paleoindian hunting of mammoth; however, as Gary Haynes (1991:289) pointed out, the costs involved in mammoth hunting by people armed with spears would have been quite

different from those for people equipped with high-powered rifles or bows and arrows. Similarly, there is also the question of the validity of using ethnographic analogies for reconstructing late Pleistocene bison procurement methods, given the fact that early Paleoindian populations faced subspecies of bison different from that encountered and hunted by the occupants of the Plains during protohistoric and historic times. Frison (1991a:164, 273-274) noted that in comparison to present-day bison, late Pleistocene bison may have been more solitary, living in small groups rather than large herds, and much easier to approach. Despite these possible differences, he argued that since archaeological evidence indicated that these extinct variants of bison had been driven and stampeded by Paleoindian hunters, it was likely that the behaviour of late Pleistocene bison was not too dissimilar from that of its modern counterpart (Frison 1982b:264, 1991a:274-275). Consequently, Frison does not hesitate to use modern bison behaviour to interpret prehistoric methods of bison procurement (Frison 1991a:234-237), including bison trapping during the Paleoindian time period as he has done for Agate Basin sites (e.g., Frison 1991a:164-170).

In yet another case, Frison (1993:244) stated that all New World Paleoindian projectile points had been propelled with a throwing stick (i.e., an atlatl), an assumption which he derived from the discovery of preserved specimens recovered in dry caves and rock shelters that date only to about 2,000 years ago. Moreover, he stated that Paleoindian communal kills of large mammals would likely have required the presence of the proper shaman in order to enhance success (Frison 1993:247). This assertion is unquestioningly based on a skimming of ethnographic accounts of historic communal hunting on the Plains.

Use of Ethnographic Analogies for Interpreting Paleoindian Gender

While these few examples deal with general interpretations of Paleoindian subsistence and hunting strategies, more specifically, what about the use of ethnographic analogies for reconstructing Paleoindian gender/sex roles and relations? Early ethnographic and ethnohistorical accounts of Plains groups often viewed women as having hard lives, being basically slaves to their husbands, and being forced to perform a wide range of drudgery and manual labour such as the preparation and cooking of food, the tanning of hides, the manufacture of clothing and lodges, and the care and raising of children. Men, on the other hand, were seen as hunters and providers, having exciting lives revolving around war, religion, and hunting (e.g., McClintock 1992:188-189). Referring to the Blackfoot Indians, McClintock (1992:189) even stated that, out of

necessity, "women took the place of servants in the capacity of wives." Also with regard to the Blackfoot, Grinnell (1962:185) unquestioningly considered all women's work as equivalent to menial work. Moreover, he presented the image that, for their entire lives, Blackfoot women had been subject to someone else's authority, whether their father's or husband's, whereas a man, from earliest childhood, had been free and independent (Grinnell 1962:216, 219). In addition, observations made by McClintock (1992:226) about a young Blackfoot woman precisely reflect early ethnocentric biases and assumptions. In describing this woman, whose "overburdened life" he was able to view, he noted that she was "young and very pretty, although the mother of a numerous flock of children." Grinnell (1923:127), however, believed that there was a persistent misunderstanding with regard to the portrayal of Indian women as slaves to their husbands. He claimed that while women had performed many tasks, men had not been idle but had performed their share of duties by hunting and warring (Grinnell 1923:127). However, he argued that in the camp of the Cheyenne, as everywhere in the world, the man had been the provider who procured the food and most of the material needs of life, while women had borne the children and cared for the home (Grinnell 1923:127). A domestic/public dichotomy is quite apparent in Grinnell's interpretation.

Many of these images are also clearly seen in Ewers' (1988) work, and his reconstruction of male and female roles for the Blackfoot in pre-horse days.

There is no denying it--a Blackfoot woman's life was hard in dog days. Not only did she bear and rear her children, prepare and cook the family meals, dress the hides of buffalo and other animals, make the tipi, the family clothing, and her domestic tools and utensils, but she was also responsible for the movement of the camp equipment. She dismantled the tipi, caught the reluctant dogs and tackled them to the travois, loaded the travois, and kept the lively dogs in line on the march. Often she carried heavy loads on her own back. At the end of a hard day's journey she could not rest until she had pitched the tipi and fed the family. Furthermore, as indicated above, women rendered active assistance in the co-operative buffalo hunt. In this toilsome life youthful beauty was short lived, and there was little comfort in old age. When they became bent with age and too feeble to follow the moving camp on foot, they were abandoned to face death alone.

Men were hunters, warriors, and craftsmen who made their weapons and their ceremonial and religious equipment. In dog days, when swiftness of foot and physical stamina were decided assets, young men must have been proud to have had the reputation of being good runners who could overtake a buffalo or an enemy on foot. Individuals who achieved outstanding war records, or who

possessed powers to call the buffalo or heal the sick, must have enjoyed a distinction among their fellows denied the average man. (Ewers 1988:16-17)

Turning to the Paleoindian archaeological literature and the discussion of gender relations for those populations, an early illustration in National Geographic (Henry 1955:794-795) portrayed a moment in late Pleistocene North American Paleoindian life. The impression of a strict division of labour between Paleoindian men and women was provided by the division between the left page of the illustration labelled "Mothers and Daughters Stretch a Bison Skin, Stake it Down, and Scrape it Clean" and the right page of the drawing labelled "Fathers and Sons Hack Steaks from the Skinned Carcass to Roast over an Open Fire" (Henry 1955:794-795).

A similar interpretation of a strict division of labour by sex was offered by Frison (1991a:298), not specifically for Paleoindian populations, but for prehistoric Plains populations in general. With regard to gender/sex roles, Frison (1991a:298) stated:

Hunting was a prestigious activity; butchering and processing the animal products were not. Hunting was male-centered activity but butchering and processing was largely performed by women. These observations come directly from numerous ethnographic accounts.

Moreover, Frison (1991a:298) argued that Nick Wilson's account (Wilson and Driggs 1919) of the time (1850-1852) that he spent with the Wind River Shoshone tribe had clarified the positions and expectations of male and female in historic Plains society, which, he believed, could also be applied to prehistoric Plains populations.

Studying Wilson's account leaves no doubt that the males were the hunters; they killed the animals, and if no females were nearby, they would field dress the animals to prevent spoilage. However, from that moment on, the women took over, beginning with skinning the animal, and then butchering and processing the meat and fleshing and tanning the hides. At no place in Wilson's narrative is there mention of a woman killing an animal or a man processing the meat. *There is no reason not to accept this division of labor as typical of prehistoric life on the Plains in prehorse times.* (Frison 1991a:298; emphasis added)

In discussing the Indian Creek site in the northern Montana Rockies, Davis and Greiser (1992:266) supported the idea that the Folsom occupation artifact assemblage appeared to represent primarily female domestic activities that succeeded such male-

dominated off-site activities as lithic and game procurement. They based this suggestion on the prominence of Folsom endscraper hide-working implements in the assemblage. According to Davis (1993:271), the waste flakes recovered from Indian Creek were male tool production and maintenance residues, while the unifaces recovered, which were dominated by sidescrapers and endscrapers and flake knives, and which made up more than 85 percent of the lithic artifacts, most likely reflected women's tasks. Davis (1993:267) consequently stressed that distinctions between kill and campsites were important for understanding gender-differentiated behaviour, and, moreover, that the roles of Paleoindian women were better elicited and elucidated through the investigation of campsites where women's work was better manifested archaeologically than at kill or butchering sites (Davis 1993:274). These interpretations and conclusions appear to be based on the implicit assumption that a strict division of labour existed between women, with their domestic camp chores, and men, with their far-ranging hunting and lithic procurement activities.

A similar picture has been provided by Sally Greiser (1985:30) in her development of predictive models of hunter-gatherer subsistence and settlement strategies on the Central High Plains. She hypothesized for late glacial hunter-gatherers that during each season, extended family units of approximately 25 people had occupied base camps in the vicinity of reliable resources. Women and children gathered "edible plants and other nonmobile foods within a radius of one-half day's travel from the base camp" (Hester and Grady 1977:78), while men hunted within a larger catchment area (Greiser 1985:30).

It is apparent that explicit statements referring to gender systems in earlier and more recent reconstructions of Plains Paleoindian lifeways are few in number. However, from these few examples, it is quite obvious that reconstructions (both explicitly stated and implicitly assumed) for the Paleoindian period reflect the images of a rigid sexual division of labour frequently presented in the ethnographic literature of historic Plains groups and other hunting-gathering societies. Men are characterized as the hunters and providers in charge of the so-called male-dominated public sphere, while women are confined to the private sphere and responsible for gathering, domestic chores, and child care. This rigid sexual division of labour has become "fact," unquestioningly accepted as characteristic of the lifestyle of all Plains groups. Therefore, it is assumed that there is no need to reconsider or examine the possibility of alternative scenarios. In summary, whether ethnographic analogies have been used directly or indirectly, it is evident that ethnographic images of hunter-gatherers and, as Kornfeld (1988:212) termed it, the "extensive Plains bison hunting folklore" (e.g., Ewers 1969, 1988; Grinnell 1962;

Wissler 1910) have coloured interpretations dealing not only with subsistence and economic activities of Plains Paleoindian populations, but also with gender/sex roles and relations.

The Validity of Ethnographic Analogies

The question that immediately arises is why do Plains archaeologists have a tendency to rely uncritically and unquestioningly, to the extent they do, upon selective ethnographic analogies? More specifically, how valid are these ethnographic analogies, whether based on historic Plains societies or general hunter-gatherers, for reconstructing Paleoindian populations and lifeways?

Despite Wedel's (1982a:105, 107) claim that systematic archaeological research was replacing ethnological analysis and thinking in Plains archaeology, I believe that many assumptions derived from ethnographic accounts, unknowingly and unquestioningly, underlie and still greatly influence many Plains archaeological interpretations. Why is this so? One of the primary reasons is the belief that the Plains area has been characterized by a long-standing big game (i.e., bison) hunting tradition throughout the late Pleistocene and Holocene (e.g., Bamforth 1988; Frison 1978; Michlovic 1986; Wedel 1982c; see discussion in Chapter IV). Because both Paleoindians and Late Prehistoric Plains populations shared an apparently common subsistence economy, all other aspects of lifeways (such as seasonal round, mobility, processing and storage, political and social structure) have been and are often implicitly assumed to be similar as well (e.g., Frison 1978, 1991a; Reeves 1990; Wheat 1972). The use of ethnographic analogies is thus justified. Moreover, the tendency towards a functional focus in dealing with Plains archaeological data (as previously discussed) further contributes to this uncritical use of selective ethnographic analogies.

In addition to the reasons outlined above, further factors have also perpetuated the use of ethnographic analogies for reconstructing Plains prehistoric and, in particular, Paleoindian gender relations. The assumption that gender structures are biologically-based and thus stable over time and irrelevant to explaining cultural dynamics, and the belief that gender is essentially inaccessible in archaeological contexts has led to an uncritical reliance upon and selective use of ethnographic analogies relating to Plains and Paleoindian gender relations.

Numerous archaeologists have criticized the use of ethnographic analogy in archaeological interpretation (e.g., Freeman 1968:263-265; Gould 1980; Gould and Watson 1982), arguing that it was a weak methodological tool because it was based on

the assumption that no change had occurred from the past to the historic present (Hughes 1991:27-28). There is now a realization that the lifestyles of prehistoric hunter-gatherers were not necessarily entirely identical in every aspect to those of recent surviving counterparts (Yellen 1977:4). Modern and recent hunter-gatherers are not "living fossils." All societies have had equally long histories (Tilley 1990b:52), and have evolved and changed over the same time span (Bleier 1984:148). Thus, because all cultures change, modern hunting-gathering patterns cannot be projected *uncritically* into the past (Hughes 1991:28). In essence, using modern hunter-gatherers as complete analogies for prehistoric cultures can be potentially misleading.

Furthermore, the traditional view of prehistoric, especially Pleistocene, hunter-gatherers as highly mobile, flexible egalitarian bands, a model which was based on analogies with groups such as the !Kung, Mbuti, and Hadza, is now considered questionable because it is highly possible that these social forms were much later developments, resulting from long-term interaction with non-hunting-gathering groups (Tilley 1991:156-157; see also Yellen 1989). As Stahl (1993) noted, in recent years there has been a growing body of literature that documents the tremendous changes in non-western cultural systems that have resulted from European contact and expansion (see Stahl 1993 for references and a more detailed discussion). This situation has important implications for the use of contemporary sources in interpretation, for it challenges archaeologists to adopt more critical approaches when employing traditional non-western societies as analogical models to generate insights into the past (Stahl 1993:245, 253).

In addition to the drawback of assuming no change when using ethnographic analogy, archaeologists are also hampered by various limitations of ethnographic reports, in that they frequently contain only ideal descriptions and few details, and the descriptions are those of hunting-gathering groups that have survived only in areas that are considered to be "marginal" and "inhospitable" (Yellen 1977:4). However, it must be noted that this assumption that modern and recent hunter-gatherers may be inaccurate analogies for earlier hunter-gatherers because they have survived only in marginal areas is questionable to a degree. For example, Inuit groups were not pushed into their arctic environments, but rather, based on archaeological evidence, have utilized this so-called "inhospitable" environment for thousands of years (Raymond Le Blanc, personal communication 1994). This situation is also true of the Great Basin populations in North America and the Central Desert populations of Australia (Ruth Gruhn, personal communication 1995). It is evident that, in this case, the words "marginal" and "inhospitable" are subjective, loaded terms reflecting cultural biases.

In addition, the descriptions presented in ethnographic reports often exhibit various forms of bias and prejudice, with an emphasis on male informants and activities, and with interpretations of the position of females and males influenced by Victorian and western or state-level value systems of the observers and early researchers. Albers (1983a:4-5), Hughes (1991:30), Kehoe (1983), Spector (1983:80, 94), and Weist (1980:256, 1983) made these claims specifically for North American Plains ethnographic literature. They argued that there had been a lack of interest in denoting gender activities in the literature, and a tendency to describe the dramatic male roles in hunting, warfare, and religion while ignoring the roles and experiences of women and "domestic" tasks such as water collection or tool manufacture, all underlain with the assumption of a rigid domestic/public separation between women and men, and the belief that what men had done and their place in society was of greater importance than what women had done in Plains societies. These various problematic aspects outlined above have, consequently, raised questions as to the usefulness and validity of the use of ethnographic data and analogy in archaeological interpretation.

More specifically for the North American Plains, using ethnographic analogy to reconstruct Paleoindian and, in general, prehistoric lifeways, including gender relations, carries with it the implication that no change occurred from the past to the historic present. For example, Hughes (1991) used an ethnographic model to interpret a gender division of labour at a prehistoric Besant hunting camp in eastern Montana. Basing her interpretation on Northern Plains ethnographic and ethnoarchaeological data, Hughes (1991) concluded that the sexual division of labour characterized by men hunting and producing "complex tools" and women processing meat products and carrying out domestic tasks had been adaptive to specialized bison hunting in a seasonal Plains environment (Hughes 1991:27, 46).¹ Thus, she maintained that because Late Prehistoric Besant archaeological data were similar to those of historic Northern Plains groups, male/female roles had been stable for the past 2,000 years on the Northern Plains.

However, there is abundant evidence to suggest that major changes did occur within Plains lifestyles, especially with the arrival of Europeans. As noted by Klein (1983:143), it is well documented by traders, explorers, and missionaries (Denig 1930; DeSmet 1904; Dodge 1959) and later by detailed anthropological studies (Ewers 1969; Goldfrank 1943; Jablow 1951; Lewis 1942) that the acquisition of the horse and gun, and trade with Europeans and Americans dramatically affected Plains Indian society (see

¹ It should be noted that items such as clothing, tipis, and pots, which according to ethnographic accounts were typically made by women, were complex tools and articles (Alice Kehoe, personal communication 1995).

Klein 1983 for additional references). Moreover, when European explorers first had direct contact with Northern Plains peoples in the late 1600s and 1700s, most of these groups had already received horses, guns, and European goods. Horses were introduced first in the south in the 1540s from the early Spanish expeditions of DeSoto and Coronado, and then apparently spread northward through the various Plains groups (see Ewers 1969 for a detailed discussion of the acquisition and diffusion of the horse in North America and especially the Plains). The Blackfoot tribes of the Northwestern Plains were among the many tribes that possessed the horse when first met by literate European men (Ewers 1969:1). The earliest statement that the Blackfoot tribes possessed horses was made in 1772 by Matthew Cocking, who had been sent to trade with them by the Hudson's Bay Company (Ewers 1969:18). Ewers (1969:18), basing his interpretation on historic accounts and native informants, placed the acquisition of the horse by the Blackfoot between the 1730s and 1754. Similarly, Vickers (1986:103) suggested that horses had been acquired in the southern Alberta Plains approximately A.D. 1730-1740. While in 1690 Henry Kelsey was the first to document the Blackfoot on the Northwestern Plains (see Epp 1993), the majority of explorers and traders were sent into the Canadian prairies and encountered Blackfoot groups in the mid and late 1700s (e.g., Anthony Henday in 1754; Matthew Cocking in 1772-73; David Thompson in 1787; and Peter Fidler in 1792-3), long after horses and other European goods had been acquired (see the discussion of early European contact with the Blackfoot in Lewis 1942:16-22). Thus, by the time North American Plains cultures were described in detail by ethnographers in the late 1800s and early 1900s, most had been to some degree significantly affected by European influences.

The introduction of the horse into the lives of the Plains people effected much change: it provided greater transportation and carrying capabilities, and thereby made it easier to move camp farther and faster (Ewers 1969:302, 308; Hanson 1986:96); it increased the efficiency and certainty of the hunt by providing greater mobility to search and pursue the bison (Ewers 1969:305; Hanson 1986:97-98); it resulted in new or adjusted military patterns and possibly an intensification of warfare (Hanson 1986:99) because of intensified and expanded inter-tribal trading systems; it expanded hunting territories and increased raiding for horses; and it possibly increased revenge killings and tribal enmity (Ewers 1969; Hanson 1986). Lastly, as a result of changes to the organization of the communal hunt and the need to maintain horse herds, the introduction of the horse altered, to some degree, communal labour, work patterns, the division of labour, and the selection and duration of campsites (Ewers 1969:301; Hanson 1986). Horses quickly became a desirable commodity in the inter-tribal trading network, an

avenue of wealth and property, and a new form of prestige which no doubt ultimately resulted in subtle changes in household exchanges, kinship ties and structure, and ideology (Ewers 1969; Hanson 1986). Ewers (1969:338-339) even argued that the use of the horse, specifically among the Blackfoot, had enriched the material culture of these Northern Plains tribes, had allowed the accumulation of property and thus the development of distinct class divisions within the society, had altered the habits of daily life, and had essentially influenced and modified to some degree every major aspect of Plains Indian life. Similarly, Grinnell (1962:242-243) suggested that the introduction of the horse into Blackfoot culture had resulted in drastic changes, not only in their way of life, but also in their mental attitude, including the acceptance of the new idea that it was now desirable to accumulate property (see Ewers 1969:299-317 and Hanson 1986 for more detailed accounts of the influence of the use of the horse on Plains cultures).

The advent of the fur trade and introduction of European markets and economies also greatly affected North American native societies, including Plains culture (see early discussion in Lewis 1942). It has been argued that the introduction of the horse and gun and the resulting buffalo hide trade, while shifting the Plains economy from a preoccupation with subsistence to one focusing on surplus and production for exchange (e.g., Klein 1983:156), resulted also in a gender balance shift noticeably in favour of what many researchers have generally assumed were exclusively male institutions such as raiding, warfare, hunting, and trading (e.g., Klein 1983:158; Sanday 1981:135; see also Kornfeld and Francis 1991:447-448). According to Klein (1983), this shift involved a change from a collective mode of production (i.e., bison pounding) in which women had been actively involved in primary production spheres and resources had been equally distributed amongst families (Klein 1983:151), to a more individualized mode of production, a rise in individualized hunting, and thus individualized ownership of the products of the kill. In particular, the introduction of the gun and, especially, who had access to guns or owned them, likely affected distribution and ownership of the products of the hunt (Charles Schweger, personal communication 1995).

This erosion of a collective mode of production resulted in unequal access to important resources, and therefore disparities in wealth between families and individuals (Klein 1983:160). Furthermore, it more strictly dichotomized male and female labour (Klein 1983:154). The life of the Plains male was increasingly involved in warfare and raiding to replenish herds. With horses controlled and owned by individual males (Klein 1983:150, 152-153), women became more segregated and virtually excluded from this military-buffalo complex (Sanday 1981:148, 157). Moreover, intensification of hide trading around 1820 (Klein 1983:154), while further increasing wealth and status

differences, also increased women's labour time in processing and tanning hides, a commodity whose acquisition and trade was largely in the hands of men (Medicine 1983:269-270), and raised the demand for tanners, resulting in increased polygyny (Klein 1983:155; Weist 1980:259). Although female labour was basically identical to that of the eighteenth century (i.e., domestic duties, gathering plants, tanning hides), Klein (1983:155-156) argued that it was their removal from crucial spheres of production (in this case, the hunt) that had affected their ability to control status-bearing goods; consequently, their position eroded and their dependence increased (see also Kornfeld and Francis 1991:447-448).

Similar scenarios of the consequences of western contact and colonialism have been outlined not only for Plains societies but also for non-western societies in general. For example, it has been argued that early trade with Europeans ultimately resulted in the beginning of the differentiation of a public sector concerned with production for accumulation and trade from a private household sector concerned with production for subsistence and sharing (Etienne and Leacock 1980:14). Moreover, it was men's spheres of responsibility that often led directly into trading and public, external political relations (Etienne and Leacock 1980:14). The growing dependence on European goods obtained through furs, which in turn were obtained by men, altered and eliminated many female productive activities (Devens 1991:512), and resulted in women becoming more economically dependent. In essence, these resulting economic transformations, the development of trade and specialization to the point that men and women were procuring and producing significant quantities of different things, and the emergence of relations of dependence outside the group essentially undermined individual control and personal autonomy, and resulted in unequal access to important resources and lay the basis for ties of economic dependence, hierarchy, ranking, gender inequality, and the inability of women to exercise autonomy over the labour process (Etienne and Leacock 1980:13; Leacock 1992:235; Sassaman 1992:72).

Of course, there remains the question as to whether or not these interpretations are too generalizing, or even inaccurate reconstructions of the effects that contact and involvement in western economies had upon non-western native groups including Plains societies. There is both historical and archaeological evidence to suggest that Northern Plains societies participated in an extensive inter-tribal trading network prior to European contact (e.g., Gregg and Picha 1991:3, cited in Kehoe 1993; Wood 1972, 1974). During the late Prehistoric and possibly even earlier, trade connected the Northern Plains to the Midwest, with horticulturalists along the Missouri River exchanging corn, beans, and garden produce with their nomadic neighbours for direct or indirect products of the hunt

such as dried meat, bison and deer robes, and other hide products (Wood 1972:159). Archaeological material in the form of exotics such as dentalium, native copper, conch artifacts, obsidian, catlinite, and Knife River Flint (Wood 1974:11-12) found in sites far distant from sources has provided support for these conclusions. As Kehoe (1993) noted, the Plains Blackfoot had been familiar with a large expansive territory most likely from trade contacts and expeditions, as suggested by maps drawn in 1801-1802 by a Blackfoot leader for Peter Fidler. Grinnell (1962:254-255) also discussed how the Blackfoot often made reference to the long journeys undertaken by war parties in the early days of the nineteenth century to the "Spanish lands," as well as across the mountains to the ocean. Evidence suggests that both prehistoric and historic Northern Plains Indians, while retaining some of the products for their own use, processed the surplus of the bovine herds into marketable products (see discussion in Kehoe 1993).

The possibility that Late Prehistoric groups were involved in intensive trade and commercial production of bison products for Missouri-Mississippi trade prior to western contact implies that Klein's (1983) scenario of a shift in Plains economy from one emphasizing subsistence to one focusing upon surplus from the eighteenth to nineteenth century may be inaccurate. This view then calls into question the interpretation that changes in gender relations involving increased economic dependence of women upon men occurred because of this apparent shift in economy. Moreover, there are numerous accounts that suggest that women in various Plains societies were able to and did own horses, and that some women were as wealthy as any men (e.g., Grinnell 1923:155). Ewers (1969:28-29) noted for the Blackfoot that horses were property, individually owned by *both* men and women. As well, numerous references by North American traders to native women trading suggested that women were not completely excluded from production spheres, the control of goods, and western economies (e.g., Coues 1965:328; Johnson 1967:108; see also discussions and additional references in Grumet 1980:56-57; Schneider 1993; and Weist 1980:265).

It is obvious that the situation was undoubtedly much more complex than what many researchers seem to portray; that is, life for non-state societies, especially hunter-gatherers, prior to European contact was some sort of egalitarian "golden age" (Abel 1993:23) in which men and women were equally valued, and that it was not until European contact and the introduction of market systems that roles of women and men became increasingly differentiated with unequal access to resources, increasing inequality and economic dependence of women, and an erosion of their position and autonomy while male roles remained more valued and privileged (e.g., Leacock 1978). These types of assumptions of a pre-contact golden age for women, and of colonization's having a

negative impact on social position of women in all cultures and in every aspect of life are highly questionable and very sweeping generalizations (see Lepowsky 1990:209 for a similar claim). While there is some evidence that women's roles, status, power, autonomy, and rights in many non-western societies have declined because of colonial policies and economic changes (see Etienne and Leacock, ed. 1980; Leacock 1978, 1980; Tiffany 1979:11; Troccoli 1992), there have been instances in which colonial, western influences have allowed women to maintain their status or have had advantageous effects on women's roles and status (e.g., Klein 1980; Weiner 1980). Moreover, responses to European contact most likely were not uniform across cultures or genders. For example, in Spector's (1983:96) study of the nineteenth-century Hidatsa, she suggested that men and women had responded differently to conditions of change brought about by contact with Euro-Americans during the latter part of the nineteenth century. Nor were non-western peoples passive recipients of these colonization efforts; rather, they actively developed various strategies to resist attempts at colonization and defend their interests (see Etienne and Leacock, ed. 1980; Rothenberg 1980). Moreover, numerous authors (e.g., Dempsey 1993; Thistle 1993) have suggested that the introduction of European goods and the early fur trade did not create native dependency on the European fur trade system, and did not radically alter the lifestyles and culture of the native populations inhabiting the interior west of Hudson Bay. Instead, it has been argued that these elements were basically incorporated into the existing lifestyles and trade systems of these groups. Dempsey (1993) and Thistle (1993) suggest that major changes in culture and traditions, and economic dependency did not actually come until much later with resource depletion, the virtual extinction of the bison, the spread of epidemic diseases, and missionary activities. Despite these claims, both the introduction of the horse and native participation in the European market economy through the fur trade must have influenced some aspects of the traditional economy of native populations.

In summary, it is relatively apparent that contact with Europeans, their trade goods and economies, introduced new production factors and a new basis of wealth which resulted in complex, and not yet well understood, changes in almost every aspect of Plains life, including and especially that of gender relations and ideology. While it is beyond the scope of this dissertation to examine further the exact nature of the effects of European contact upon Plains lifeways, there is little doubt that the introduction of the horse, fur trade economies, disease, influence from missionaries, and the eventual loss of bison hunting on the Plains had a profound effect on all members of the culture, not only native women, but men and children as well. Hence, it is misleading to assume that North American native societies were not significantly affected by European contact, and

that these societies can be used as simple analogues for earlier pre-contact hunting-gathering societies. Taking a static and ahistorical view of societies ignores both the dynamics of precolonial change and the realities of the effects of colonization (Etienne and Leacock 1980:2; see Leacock 1982 for specific examples of post-colonial changes within band societies that resulted from European contact).

Therefore, in answer to the question of how valid ethnographic analogies are for reconstructing Plains Paleoindian lifeways, one can conclude that accounts of groups in recent environments and social contexts, which have been influenced by European trade goods, economies, and colonization, may not be entirely applicable for prehistoric groups on the Plains. This conclusion may be true even more for Paleoindian populations who lived under seasonal patterns of the late Pleistocene-early Holocene environments that were much different from those characteristic of Protohistoric and historic times, when ethnographies of the Plains bison hunters were written (see following chapter for more detailed discussion). Instead, Paleoindians may have practised different strategies from the classical ethnographic seasonal round that forms the basis of many Paleoindian models such as Greiser's (1985) reconstruction.

Discussion: The Use of Ethnographic Analogy

While anthropological studies of cultures throughout the world show a great variety of lifeways, subsistence patterns, and interaction between women and men and the tasks and roles they perform, archaeologists cannot assume that the lives of men and women in prehistory, especially during the late Pleistocene, were identical to those of cultures living today or in the ethnographic past. But as Yellen (1977:3) pointed out and as illustrated here, although there are numerous problems associated with the use of analogy, and, consequently, much criticism over its use, it is extremely difficult to make any statements about prehistoric lifeways without reference to such analogy. All prehistoric archaeological interpretation is analogical in nature, as hypotheses are predominantly drawn from ethnographic data (Larson 1991:165). In essence, the reality is that prehistorians must rely heavily upon knowledge of how things work now, based on their experiences or those reported by others, to have any conception at all about the past (Larson 1991:165; Zihlman 1991a:5). Analogy is essential to archaeological interpretation and basic to all scientific thinking (Kehoe 1991:430; Kelley and Hanen 1988:261-262).

Of itself the use of analogy is not necessarily bad; it is the uncritical, unquestioning, and implicit use of analogy that archaeologists must guard against (Larson

1991:166). In essence, the uncritical selective use of ethnographic analogy has contributed significantly to the development and dominance of the unquestioned notion of Paleoindian big game hunting, and the acceptance of a static and likely distorting view of gender/sex roles and relations for Paleoindian and Plains populations.

Many archaeologists believe that analogy can be a powerful interpretive tool if used carefully, with some criterion for comparison, and in the correct manner (e.g., Ascher 1961; Binford 1967; Hughes 1991:28; Wylie 1985). Binford (1967, 1968) argued that analogues were not to be used as a basis for the interpretation of archaeological data, but rather as a basis for developing postulates from which hypotheses were derived, which, in turn, could be tested by archaeological and ethnographic data. Ascher (1961:319-323) argued that it was best to seek analogies in cultures that manipulated similar environments in similar ways, had similar economies, and had similar technological development. It was necessary, moreover, to consider their distances in terms of space and time, and to examine the closeness of the fit of the relationships between forms in the archaeological situation and those in the supposedly analogous situations. In other words, the greater the similarity in the entire context between the two examples being compared, the greater was the plausibility of the analogy. However, it is unrealistic to expect situations with identical or near identical environments or contexts; moreover, identical environments and contexts would not necessarily indicate that identical choices would have been made. As well, local environments and contexts can often experience subtle but important changes over time that may not be completely visible.

Despite the many problems associated with the use of analogy, it is often a very necessary and vital part of archaeological interpretation. Hence, when dealing with the use of ethnographic analogies to assist in interpreting archaeological data, one must be rigorous and critical (see Larson 1991 for an illustration of such an approach in the use of ethnographic analogy in archaeological interpretations). In the case of the direct historical approach, in which one is able to trace well-documented ethnographic groups to their prehistoric antecedents in the same area, ethnographic analogy may be more appropriate but still must be used cautiously, with the consideration of the possibility of change over time, as illustrated above for Plains groups. Underlying assumptions derived from ethnographic data must be exposed, identified, made explicit, and examined to determine whether they are valid or not. As Larson (1991:166-167) illustrated very effectively, for the proper use of analogy there must be an emphasis on the comparison of both the similarities and differences between the prehistoric and ethnographic forms, as well as an analysis of the underlying principles on which those similarities and differences are

based. Moreover, Stahl (1993:252) stressed the importance of adopting a comparative approach rather than an illustrative approach when applying analogues, an approach that, in part, would enable archaeologists to examine dissimilarities and divergences and thus possibly lead to alternate interpretations.

In summary, the ethnographic record is not entirely unusable and inaccurate because it was collected primarily by white, western males. Instead, the ethnographic literature and use of analogies derived from that record can be both invaluable and positive tools for archaeologists, depending upon the individual researcher's perspective and approach. Selective and uncritical use of ethnographic analogies, dependence upon unquestioned notions derived from or "perceived" in the ethnographic literature, and total analogues can easily result in generalized, inaccurate, and simply bad interpretations. No ethnographic analogue can ever provide the complete blueprint for archaeological interpretation; instead, ethnographic cases help to set a range of interpretative options for the archaeologist (Cannon 1991:146). While total societies may be inappropriate analogues for prehistoric societies, elements within the ethnographic literature can frequently provide useful partial analogues in archaeological interpretations. For Paleoindian populations then, given the different environmental, demographic, and social settings, there is no strict correspondence or comparison to modern or more recent hunting-gathering groups. This fact, however, does not preclude the use of partial analogues obtained from the ethnographic record to suggest possible scenarios and patterns for aspects of Paleoindian lifeways, including that of gender/sex roles and relations, if the use of those partial analogues is undertaken in a rigorous manner.

The important point to stress is the need to be more critical when interpreting the archaeological record, especially when those interpretations are based to a large degree upon underlying assumptions and stereotypes derived from ethnographic and ethnohistorical data. Moreover, there is also clearly a need, in addition to being more rigorous with the use of analogy, to reevaluate previous archaeological interpretations that have been based on the uncritical and selective use of ethnographic analogies, a need for more in-depth analysis and critique of the actual ethnographic documents to understand more precisely the scope of the impact of European contact on Plains and other non-western societies and gender roles, and the need to be aware of the possibility of ethnocentric and western or state-level bias and assumptions colouring ethnographic literature.

SUMMARY

The previous discussion has revealed the numerous untested assumptions and inconsistencies that have kept the big game hunting model alive for Paleoindian lifeway interpretations, as well as illustrated the social and historical factors that have resulted in its dominance. Clearly, archaeologists need to be aware of the sociopolitical, historical, and ideological biases that affect the archaeological interpretation of data (Hanen and Kelley 1983; Wylie 1983), that is, how present-day values, prejudices, norms, and politics come to be embedded in one's work, and how archaeologists participate in the process of imposing the present on the past (Gero 1985:343). Hence, it is important for archaeologists to engage in self-reflective criticism (Gero 1985:342; Keller 1982:594) to help in making all preconceived assumptions and beliefs explicit (Mandryk 1992:61). However, while paradigmatic biases, the social context, and preconceived assumptions and ideas influence how archaeologists interpret the Paleoindian data, there is also the influence of increasing data that simply can no longer support the big game hunting model and its associated assumptions (see following chapter).

Although Plains archaeology has been dominated until only recently by male researchers, the emphasis on the interpretation and image of big game hunters is not due to some sort of "male bias" on the part of male archaeologists, or a deliberate attempt to ignore female contributions in prehistory. Instead, as outlined in this chapter, this overemphasis on hunting is the result of and kept alive by factors of preservation and sampling of sites, by the ethnographic folklore of Plains hunter-gatherers as big game hunters, by Plains archaeologists' interest in the more visible and dramatic activities apparently represented in the archaeological record, and by the assumption derived from ethnographic models that gathering activities primarily performed by females were insignificant, and are essentially invisible in the archaeological record and impossible to examine scientifically. Even though the majority of Paleoindian lifeways reconstructions are essentially genderless, this emphasis on hunting, an activity which is considered to be conducted predominantly by men, appears to favour the visibility of prehistoric male actors while ignoring the possible contributions made by women and children. As Kornfeld (1991:2) remarked, the prehistoric Plains world seems to be full of hunters, generally seen as male, with only "a small sprinkling of women gatherers." Without doubt, scenarios of Plains prehistory (and the Paleoindian period is no exception) were and are invariably created in a western, state-level social environment still heavily influenced by nineteenth-century Victorian values of a rigid division between a male public sphere and female domestic sphere (Kehoe 1983; Kornfeld 1991:2; Weist 1983), a classic example seen in the arguments made by Davis (1993; see discussion earlier in this

chapter). As noted by Kornfeld (1991:4), Victorian notions of female submissiveness, purity, piety, and domesticity are part of the Euro-American heritage which enculturates modern scientists, and these biases may be hindering archaeologists from exploring alternative views of the past.

Archaeologists must realize that the images of "classic" ethnographic hunting-gathering groups, and especially Plains historic bison hunters, are not necessarily a total comparable analogy for the reconstruction of not only gender/sex roles and relations of Paleoindian populations, but also subsistence and general lifeways. Clearly, archaeologists need to question images of gender derived from selective ethnographic analogies that appear to support preconceived assumptions about gender relations. By uncritically using historic and ethnographic accounts as a basis for interpretation of Plains archaeological data, and consequently assuming the all-importance of bison and big game hunting, Plains archaeologists tend to discount the changes that occurred as a result of European contact. Moreover, they ignore the possibility of precolonial change and the likelihood of variability and flexibility in lifeways and gender relations in prehistoric Plains groups over time.

In summary, it is evident that the big game hunting model is so dominating that aspects of culture other than hunting tend to be either distorted or forgotten. There is clearly a crucial need to restore some sort of balance to the past. Archaeologists are no longer justified in presenting Paleoindian life as revolving entirely around the hunting of large Pleistocene mammals such as bison and mammoth. More likely, hunting was only one component within a complex, dynamic life for Paleoindian people. As Gero (1993) stated, it is now time to reclaim a social life for Paleoindians, a life which includes a fuller and broader range of cultural material and dynamic social experience beyond that of the fluted point, hunting lifestyle, and the bison and mammoth. As Tilley (1991:116) noted in discussing Gadamer (1975), "Understanding is a process in which we need to try out alternative readings of the text to see how to make sense of it from different positions." In the following chapters, I will do just that: develop an alternative reading of the Paleoindian data from a perspective which is more critical of the functionalist, typologically-oriented positivist archaeology that led to the development of the big game hunting interpretation and its associated assumptions.

CHAPTER VI

A CONSTRUCTION OF PALEOINDIAN SUBSISTENCE AND SETTLEMENT PATTERNS

INTRODUCTION

As demonstrated in the previous chapters, the focus on typology, systems analysis, adaptation, and the environment has resulted in a very mechanistic, functional, and essentially de-humanized view of Plains life, including that of the earliest Paleoindian occupations of this region. Contrary to criticisms that suggest that in archaeological reconstructions women frequently disappear in generic categories, becoming invisible by being subsumed in units of analysis that are characterized according to male occupations and power relations (Spencer-Wood 1991:234, 236), I contend that both Paleoindian women and men, as well as children, the individual actors who made decisions and acted upon them, tend to be portrayed as pawns and are given irrelevant and unchanging roles because they are believed to have been controlled by a larger cultural system. The picture that has resulted is one of a Plains people, throughout all of prehistory, practising a long-standing adaptation emphasizing big game hunting (primarily bison), with men hunting and making formal stone tools, and women gathering, processing meat, and undertaking domestic tasks. This image potentially minimizes and distorts the importance of both male and female roles, labour, and contributions to subsistence, and it discounts the possibility of flexibility and dynamic interplay in gender/sex roles and relations.

It is clear, however, from the increasing emphasis on gender in recent anthropological research and the discussion presented in the previous chapters that gender relations are an integral, dynamic, and influential aspect of the general lifeways of hunting-gathering populations, including subsistence and settlement realms. As Conkey and Spector (1984:21) argued:

Most of the questions about culture process raised by contemporary archaeologists have a gender component or dimension: site functions; site uses; subsistence systems that are, of course, based on task-differentiation; inter- and intrasite spatial phenomena; settlement systems; the power and role of material culture; mechanisms of integration and cultural solidarity; extradomestic trade

and exchange systems; and, above all, the course of culture change.

I believe, as Conkey and Spector (1984:28) suggested, that gender dynamics need to be understood and considered at some level in order to obtain a more complete and comprehensive picture of prehistoric lifeways, especially including aspects of site function and use, and subsistence and settlement systems. As Bolen (1991:402) indicated, "by operating as a social construct through which group and community decisions are enacted, gender becomes integral to the spatial structuring and organization of society." Subsistence and settlement patterns and strategies that can be seen in the archaeological record and reconstructed for a particular prehistoric society were, in essence, created by the social dynamics and interplay of processes such as decision-making, the organization of production, and gender relations. Thus, patterns of land use, settlement, and mobility, as well as artifacts, may be able, in some cases, to provide clues about the construction of gender in a particular culture (Stine 1991:499).

Basing their interpretation on the claim made by Etienne and Leacock (1980), that understanding the structure of gender roles lies in understanding the relations of production, Kornfeld and Francis (1991:445) suggested that different settlement and subsistence systems create different labour relations and varying structures of gender roles. While it is apparent that there is a vital and important association between gender relations and subsistence and settlement activities, I do not believe that this connection can be defined in such a simple and unilinear cause and effect manner. Gender and sex roles and relations are not automatic responses to, nor direct determinations by, the general nature of subsistence and economic life. Instead, the relationship between gender relations and subsistence and settlement systems ultimately involves multiple factors that influence each other, and interact, not following a unilinear path to produce some sort of static final result, but rather in a more complex, dynamic, multilinear, interactive, and contextual fashion (Figure 1). Moreover, it is becoming increasingly apparent that men and women play active roles in defining and redefining their spheres of activities and responsibilities and their relations with each other. For example, Wall (1994:15) demonstrated that both men and women in late eighteenth- and early nineteenth-century New York City actively participated in redefining their spheres, and contributed to the transformation of American culture into distinct male and female spheres.

The purpose of this chapter and the following chapter is to begin to explore this important interconnection between gender dynamics and subsistence systems for

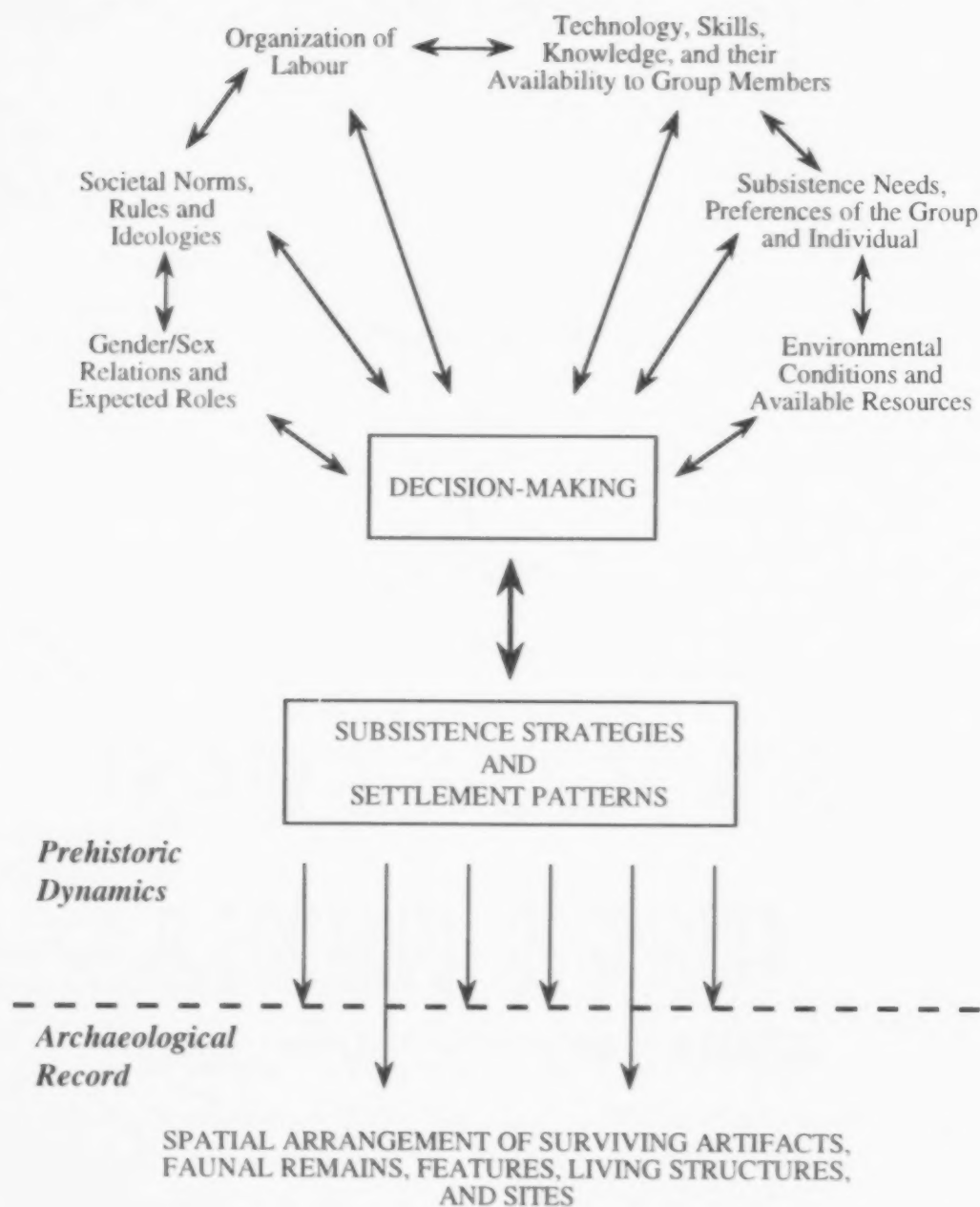


Figure 1. Relationship between Gender/Sex Roles, Decision-Making, and Subsistence and Settlement Strategies.

Paleoindian populations who lived on the Northern Plains during the later stages of the Pleistocene (ca. 11,000-10,500 years B.P.), and, in the process, construct a subsistence/settlement model emphasizing gender. This chapter will briefly introduce late Pleistocene environmental information, as well as theoretical discussions of hunter-gatherers and Paleoindian archaeological data, as a basis for developing the decision-making and gender model of Paleoindian subsistence/settlement strategies, which will be addressed in detail in the following chapter. As discussed in Chapter III, I find the task differentiation approach to be inadequate and too constraining in many ways, especially as a method for examining the dynamics of prehistoric lifeways and gender/sex relations (see similar claim in Spector 1993:17). As Spector (1993:17) maintained, by attempting to classify tools as male tools or female tools, with underlying implications of domestic and public domains, static and rigid images are created, generating "distanced and lifeless representations of the past." In essence, artifact taxonomies with implied subdivisions by gender tend to lead us away from insights about the original meaning or use of these artifacts, and result in the neglect of the dynamics surrounding those artifacts (Spector 1993:33).

Therefore, rather than depend upon the task differentiation approach for constructing a model of Paleoindian gender/sex roles and relations, I will emphasize aspects of decision-making in subsistence and settlement activities as a way of approaching the subject from a dynamic perspective. The importance of viewing subsistence through decision-making becomes apparent because it incorporates people back into models of the past, considers gender relations in a more realistic and dynamic manner, and, in the process, views people not as objects responding to and controlled by external forces, but rather as actors with the ability to make decisions and control their own actions. Numerous decisions are often structured and made on the basis of gender, and this assumption would be equally true for many of those dealing with subsistence and settlement activities. But while the visible results of decision-making processes can be seen and investigated using such archaeological evidence as subsistence and settlement data, it is clearly impossible to reconstruct the exact thought processes of the individuals making those decisions (Shennan 1993:56). Obviously, it must be acknowledged that archaeologists will never be able to get to the individual and his/her mind in any detailed and certain manner; however, claims that the nature of the archaeological record is not amenable for discussion about individuals because archaeological assemblages result from corporate actions of many people representing average behaviours (see discussion in Mithen 1990:3) fail to realize that, nevertheless, the actual consideration and recognition of the individual can be important for

ultimately gaining a better understanding and constructing a more realistic picture of the past. As Shennan (1986:334, cited in Mithen 1990:3) noted, the recognition that actions and thoughts of individuals are largely inaccessible to archaeologists does not invalidate a need for a focus on the individual.

Clearly, the archaeological record for the Northern Plains represents only a portion of the entire range of decision-making events and processes in which Paleoindian peoples were involved. However, contrary to commonly held assumptions, these decisions reflected in the sample of Paleoindian sites do not simply revolve around the hunting, killing, and processing of game, but include non-hunting decisions and considerations as well. Thus, although this model will deal with only a fraction of all Paleoindian decision-making, it will consider not only hunting economy decisions but also non-hunting economy decisions, and it will emphasize aspects that encompass a wider range of food and raw material acquisition and site placement, with the realization that these decisions are often embedded and intertwined and affected by others. Obviously, a model can ever be only a simplification of reality. Models are not intended to describe reality fully; moreover, as discussed previously, there are a number of perspectives from which to view the world. As Eric Alden Smith (1991:45) remarked, models isolate some of the variables presumed to be important, so they can be more easily examined and evaluated. In this case, the variables that will be emphasized and considered important are gender/sex relations and decision-making related to subsistence and settlement.

In addition, my model reconstruction and examination of gender relations in Paleoindian groups will be approached from a holistic perspective, rather than a restrictive dichotomization of life into domestic and public spheres. Albers (1983b:177-179) discussed the advantages of using such a perspective, and she applied it to her study of the effects of colonialism and capitalism for Sioux women. Simple dichotomies such as the private/public dichotomy, as illustrated in previous chapters, are clearly inappropriate for hunting-gathering groups (and probably for many other societies as well). The dynamics of each "sphere" are mutually determined; thus it is difficult, if not impossible, to separate life clearly into distinct realms, especially for small scale societies. By simplifying life into these separate domains, that is, assuming a domestic/public dichotomy, the potential for confusion and distortion is created. This simple dichotomy based on western and state-level concepts is ultimately unhelpful for archaeological interpretations, in that it tends to result in definitions and rigidity, rather than discussion and consideration of variation, flexibility, context-dependent

situations and events, and dynamics, which can be achieved through using a more powerful holistic perspective.

LATE PLEISTOCENE-EARLY HOLOCENE ENVIRONMENTS: SETTING THE ENVIRONMENTAL CONTEXT FOR PALEOINDIAN POPULATIONS

Introduction

Attempting to construct my Paleoindian model requires an initial picture of what is known of the environmental context in which Paleoindian people made decisions with regard to subsistence, acquisition of resources, and movements and placement of sites; that is, one must reconstruct the late Pleistocene-early Holocene environment in an attempt to determine the potential resources available to them for exploitation, and the types of climatic regimes in which they had to schedule their activities. Because the results from various hunter-gatherer settlement and mobility studies (Binford 1980, 1982; Kelly 1983) clearly indicate that settlement and mobility strategies of a hunting-gathering group are closely related to the structure of resources in their environment, study and knowledge of late Pleistocene-early Holocene environments is important for developing models of Paleoindian subsistence, settlement, and mobility patterns.

There appears to be a tendency among many archaeologists to oversimplify paleoenvironmental reconstruction and the nature of the environmental changes during the Pleistocene-Holocene transition, and resort to the use of modern analogues. In the recent past, it was assumed that by studying regional Pleistocene fauna and flora, the climate could be easily reconstructed by reference to an existing environment with similar combinations of plants and animals; for example, the Pleistocene climate of the Plains was often compared to that characteristic of modern tundra and subarctic environments. However, perfect analogues cannot be found for any late Pleistocene climate because orbital parameters and the resulting latitudinal and seasonal distributions of solar radiation were very different during the Pleistocene (Kutzbach and Guetter 1986), and because most Pleistocene faunas and floras contain combinations of species that do not occur together today (see discussion below). Increasingly more Quaternary researchers (see references in Graham and Lundelius 1984:224) are concluding that there are no modern counterparts or equivalents to late Pleistocene climates, biotas, and environments (Guthrie 1984:263); thus the application of direct modern analogues in late Pleistocene paleoenvironmental reconstruction is very limited (Graham and Mead 1987:396). If late Pleistocene-early Holocene environments were

very different from those of today, as paleoenvironmental data would appear to indicate, then it follows naturally that Paleoindian adaptive strategies were also likely different from and much more variable than present-day portrayals of hunter-gatherers. Hence, this difference calls into question the validity of the uncritical use of selective and generalized ethnographic analogies, one-to-one comparisons that, without much consideration, equate modern and historic hunting-gathering adaptations with Paleoindian lifeways. But while the late Pleistocene environment was clearly different from any today, as illustrated in more detail below, and consequently there is no one-to-one relationship or correlation between either late Pleistocene environments or human groups and modern counterparts, in order to understand some aspects of past climate and cultures, the critical use of partial analogues is necessary and will be employed in this study to assist with constructing a Paleoindian model.

The following reconstruction of the late glacial-early Holocene environment for the Northern Plains, although not extremely detailed and in-depth because that is beyond the scope of this dissertation, will emphasize well-integrated paleoenvironmental records, including the most recent data relating to pollen and fossil records, as well as consideration of paleoclimatic models based on atmospheric circulation patterns. In recent years, atmospheric general circulation models have been devised to determine the spatial patterning of the possible atmospheric response to changes in latitudinal and seasonal distribution of solar radiation brought about by orbital parameter changes, first proposed by Milankovitch (1941) as a primary cause of glacial-interglacial fluctuations during the Pleistocene. Although these theoretical climatic models, which essentially become hypotheses to be tested (e.g., Schweger and Hickman 1989), entail too many simplifications, and have a grid resolution that is much too coarse to allow detailed comparison with local geologic records (Kutzbach 1987:444), such a theoretical emphasis can provide an additional perspective for learning more about ancient climate and environments, especially for understanding how and why climates change (see Bamforth 1990:360; Hall 1988; Kutzbach 1987; Kutzbach and Guetter 1986). Normative descriptions of the environment and merely the identification of the plant and animal species available for human exploitation create the image of a static and non-dynamic environment, and provide only part of the information needed to assess the relationship between the environment and human responses (Bamforth 1988:16; Winterhalder 1980:136). Instead, for a valid investigation of human-environment interaction and subsistence decision-making, the environment must be considered in terms of its general physical nature, which offers constraints and opportunities in locating potential resources, the types and numbers of

species present, and the overall spatial and temporal variability of resources, as well as any variation in those patterns over time (Mithen 1990:84; Winterhalder 1980). Thus, a brief consideration of both empirical data and theoretical data focusing on these aspects will be used in order to gain a comprehensive reconstruction of late glacial paleoenvironments on the Northern Plains that will serve as the basis from which a Paleoindian subsistence/settlement model emphasizing gender and decision-making can be developed.

Paleoenvironmental Reconstructions

Late Pleistocene Environments

The late glacial-early Holocene was a time of dramatic, rapid, and unique climatic and ecological change (Graham and Lundelius 1984:223; Graham and Mead 1987; Saunders 1990). Climates warmed rapidly, and the recession of the Wisconsin ice was well under way by 13,500 years ago (Saunders 1990:136). Estimations of ice volume derived from isotopic records in marine sediments suggest that by 12,000 years B.P., ice sheet height was reduced to half of what it was at maximum glaciation, 18,000 years B.P. (Kutzbach 1987:427). In addition, the trend began toward an intensification of seasonality, and hence more constricted growing seasons, accompanied by the extinction of a previously diverse megafauna (Figure 2; Graham and Lundelius 1984; Graham and Mead 1987; Guthrie 1984).

Kutzbach and Guetter (1986) have conducted atmospheric general circulation model experiments at 3,000 year intervals for the past 18,000 years in order to estimate the magnitude, timing, and pattern of climatic change during the late Quaternary. The conclusions that can be derived from these models, along with late Pleistocene-early Holocene fossil evidence, support one major hypothesis: late glacial climates and environments were very much different from any today. Pleistocene fossil evidence (both plant and animal) points toward a remarkable diversity of biotas and species-rich biotic communities (see Guthrie 1984:263-266, 1990). In fact, many late Pleistocene communities consisted of species that today are geographically allopatric and apparently ecologically incompatible (Graham and Lundelius 1984:224; Graham and Mead 1987:371-372; Guthrie 1984). These Pleistocene disharmonious associations (i.e., the overlapping of taxa with different present-day tolerance ranges) are believed to have been maintained by an equable climate, that is, one with reduced climatic extremes, reduced seasonality, and consequently cooler summers and warmer winters

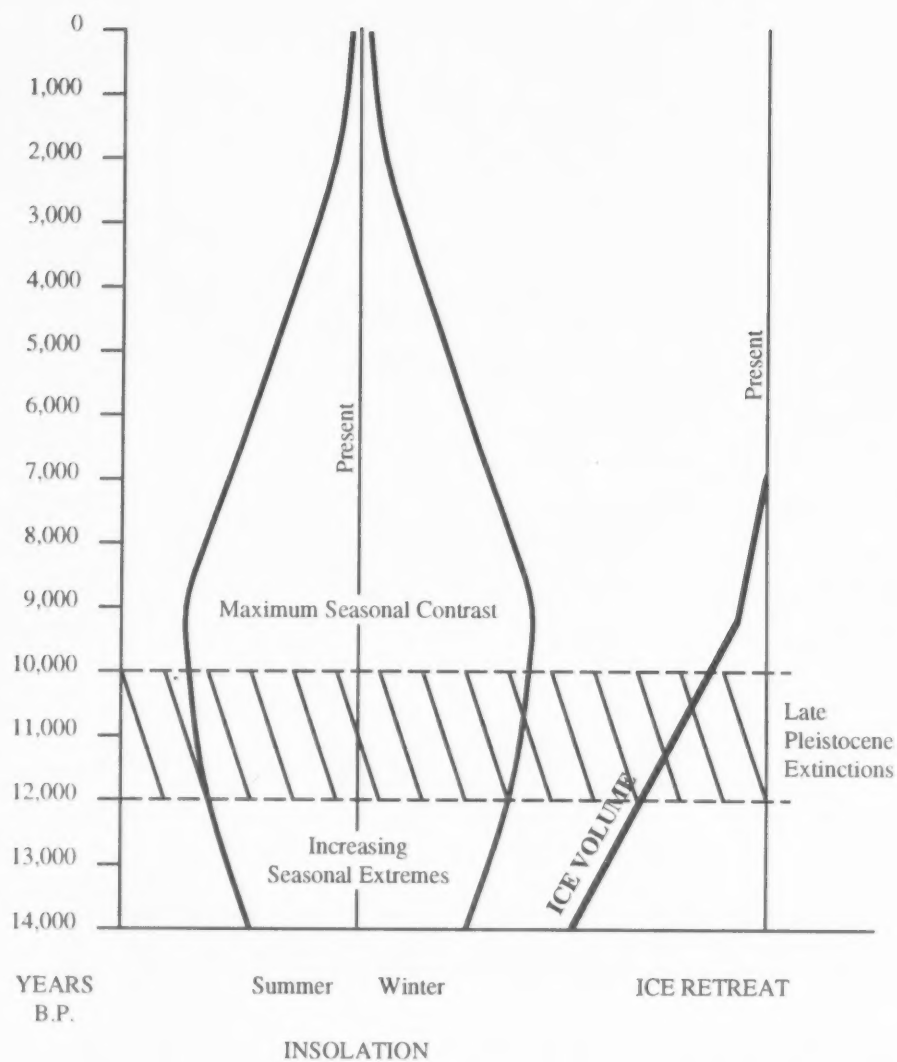


Figure 2. Schematic Illustration of Late Glacial Environments in North America (adapted from Kutzbach 1987:Figure 1 and based on data from Kutzbach 1987 and Martin 1982).

(Graham and Lundelius 1984:224; Graham and Mead 1987:396; Guthrie 1984; Martin et al. 1985:25; Wright 1987:486). Obviously, there are no modern counterparts or analogues to these late Pleistocene climates and environments.

With specific respect to the Pleistocene-Holocene transition, climatic models indicate that much of the climatic change for the period 12,000-6,000 years B.P. can be simply described as an amplified or stronger and more defined seasonal cycle in response to the larger seasonal radiation extremes of the Northern Hemisphere (Kutzbach 1987; Kutzbach and Guetter 1986). Climatic modelling suggests that maximum summer insolation and minimum winter insolation occurred about 10,000-9,000 years ago (Kutzbach and Guetter 1986). These interpretations are also supported by fossil data, which clearly indicate a shift from a cold equable Pleistocene climate to a warmer more continental one, with an associated change from complex mosaic patterns of high species diversity and disharmonious associations to much more simplified and homogeneous biotic communities (see Guthrie 1984). In essence, with deglaciation, climatic patterns became increasingly seasonal in nature, and those disharmonious biotic communities of the Pleistocene, which had developed under reduced seasonal climatic conditions, began to break up as plant and animal species colonized deglaciated areas and were redistributed across the landscape according to their specific environmental tolerances (see discussion and references in Dincauze 1993:280-281 and Graham and Lundelius 1984). This restructuring of biotic systems, which clearly would have stressed both fauna and human occupants and ultimately would have resulted in the reduction of both the diversity and richness of fauna in comparison to their late glacial conditions (see discussion and references in Dincauze 1993:280-281), was also accompanied by the extinction of several genera of primarily megafauna (Graham and Lundelius 1984; Guthrie 1984; Martin and Klein 1984). These environmental fluctuations and shifts were geologically rapid but time-transgressive (Graham and Mead 1987:397); that is, they occurred at different rates in different locations because of the individualistic response of each species to the dramatic climatic changes at the end of the Pleistocene.

Along with these great changes in climate and biotic communities during the late Pleistocene, tremendous shifts occurred in the location of erosion and deposition, as well as in the intensity of transportation events (Whitley and Dorn 1993:634). In many places, rapid incision occurred as the geomorphic response to climatic and eustatic sea-level changes, accompanied by drastic responses in hillslope and river systems (Baker 1983; Bull 1991; Whitley and Dorn 1993:634). The result would have been few places at the close of the Pleistocene in North America where nondestructive sedimentary

processes, conducive to the preservation of archaeological deposits, could have operated (Whitley and Dorn 1993:634). However, it must also be noted that erosion produces massive amounts of sediments that must be deposited somewhere. Ultimately, then, during the late Pleistocene, some degree of deposition that could have potentially buried and preserved sites must have occurred (Charles Schweger, personal communication 1995).

During the glacial maximum, high lake levels indicate that winter precipitation in the Southwest and Southern Plains was likely higher (or evaporation and temperature were decreased). This pattern of precipitation, though, changed with deglaciation as the jet stream shifted northward (Meltzer 1993a:302; Wright 1987:485-486). While new lands were available with the recession of glacial ice, continental shelves became inundated and glacial lakes formed in the bedrock as the large pluvial lakes in the Great Basin, Southwest, and Southern Plains were shrinking (Benson and Thompson 1987; Meltzer 1993a:302). Geologic evidence at the Murray Springs site and other sites in San Pedro Valley of southern Arizona appears to suggest that the water table fell and that drought conditions were present during Clovis occupations (Haynes 1993:228). Thus, it is highly probable that many parts of North America, especially the northern Great Plains, were subjected to drought conditions around 11,000 years B.P. (C. V. Haynes 1991, 1993).

Northern Plains

Many earlier paleoenvironmental researchers believed that boreal spruce forest occupied a major portion of the Northern Plains during the late Pleistocene and early post-glacial times, being replaced by steppe environments only around 10,500 years B.P. (see Hoffmann and Jones 1970). Basing his interpretation on pollen sites in the Northern Plains and along the eastern edge of the Central Plains, Wright (1970:162) similarly concluded that boreal forest dominated the landscape until 12,000 years B.P. in the south and 9,500 years B.P. in the northern regions. Despite gaps in data from the western half of the Plains, Wright (1970:169) suggested that the entire area from southern Canada to Kansas and Missouri during the Late Wisconsin was marked by boreal spruce forest extending eastward to the Appalachian mountains.

Similar conclusions were also drawn by earlier researchers when examining late glacial faunas. According to Hoffmann and Jones (1970:363), late glacial faunas from eastern Wyoming (13,000-10,500 years B.P.) revealed a complex of steppe, taiga, and tundra species, probably overlapping in time. Basing their interpretation on inferences

from mammalian distributions, Hoffmann and Jones (1970:390) argued that the general environment of the northern Great Plains in Late Wisconsin time must have been one of coniferous forest, connecting boreal coniferous forest south of the glacial ice and montane coniferous forests extending from the Rocky Mountains eastward. It was believed that these forests were widespread on the Plains at this time, with steppe or savanna-type environments restricted to a limited area east of the Rocky Mountains, southward from eastern Colorado, western Kansas, and perhaps in the Wyoming Basin (Hoffmann and Jones 1970:390).

Roberts (1970), in an analysis of mammalian remains from the Hell Gap archaeological site in southeastern Wyoming, discovered three species from late glacial levels that no longer occurred near Hell Gap, but rather were restricted primarily to montane habitats. Therefore, based on the distribution of these three montane mammalian species, he concluded that prior to 8,900 B.C., the climate and vegetation of the Hell Gap site (situated at 1,525 metres elevation) and surrounding region was similar to that of present-day montane forests at about 2,100 to 2,400 metres (Roberts 1970:13). This distribution suggested to him that vegetation zones had been vertically displaced by 600 to 1,000 metres. He also postulated that open woodland forests with patches of open meadow were present in the valleys during the late glacial, while air temperature was at least 3.5°C cooler than at present, with a decreased rate of evapotranspiration (Roberts 1970:13).

In more recent years, additional paleoenvironmental studies for the Northern Plains reveals a slightly more detailed picture of late Pleistocene environments than the one outlined by earlier researchers. However, the fact still remains that there is very little paleoenvironmental data for the Pleistocene-Holocene transition for the Northern Plains because of so few lakes and wetlands suitable for paleoecological study (Barnosky, Grimm and Wright 1987:268). Despite the lack of data for this region, preliminary analyses have led to several conclusions (see Barnosky, Anderson, and Bartlein 1987; Barnosky, Grimm, and Wright 1987). First, the effect of the ice sheet on synoptic Great Plains climate was especially great. Second, the physical evidence for periglacial conditions in the northern Great Plains suggests a cold and windy climate (Barnosky, Grimm, and Wright 1987:268). According to paleoclimatic model simulations (Kutzbach and Guetter 1986; Kutzbach and Wright 1985), these winds were easterly or northeasterly because of the anticyclonic circulation over the ice sheet (Barnosky, Grimm, and Wright 1987:268). Further north, dune fields in northern Saskatchewan also indicate a similar wind direction (in this case, southeasterly) due to

the anticyclonic adiabatic air masses that came off the retreating Laurentide ice sheet and then rotated slightly to the right (see David 1981).

Overall, for the eastern area of the Plains (the Dakotas), pollen records derived primarily from sites peripheral to the northern Great Plains, that is, east of the Dakotas (Barnosky, Grimm and Wright 1987:260-261), indicate that an open spruce forest with some deciduous trees was present during late glacial times. For the western area of the Northern Plains, sites from Montana and Wyoming suggest treeless vegetation for the past 12,000 years, whereas in the mountains, along the western boundary of the Plains, pollen data imply parkland of Picea and Abies (Barnosky, Grimm and Wright 1987:263).

More specifically, at Guardipee Lake, near Browning, Montana, east of the Rocky Mountains, the earliest pollen assemblages (ca. 12,200 years B.P.) are dominated by herbs and shrubs indicating that extensive woodland/forest was not present on this part of the Plains at the end of the Late Wisconsin glaciation (Barnosky 1989:71). In sediments deposited between ca. 12,200 years B.P. and ca. 9,300 years B.P., high non-arboreal percentages and small amounts of Juniperus, Alnus, Salix, and Populus pollen suggest a temperate grassland with shrubs growing locally in mesic settings (Barnosky 1989). As well, an increase in sagebrush relative to grass pollen (between ca. 11,500-9,500 years B.P.) and an increase in the xerophyte Sarcobatus and brackish water Ruppia (ca. 11,500 years B.P.) all suggest enhanced aridity and a trend toward drier conditions after 11,500 years B.P. (Barnosky 1989:65, 69).

The pollen record from Antelope Playa in the eastern Powder River Basin of Wyoming (see Markgraf and Lennon 1986) is very similar to that of Guardipee Lake. At Antelope Playa, the evidence indicates the presence of grassland vegetation during the last 13,000 years in eastern Wyoming (Barnosky 1989:69-70). According to sedimentological, paleolimnological, and paleoenvironmental data from this location, no major changes occurred during this time interval; thus, it may be inferred that late glacial type climates in the eastern Powder River Basin were similar to modern conditions (Markgraf and Lennon 1986:1). During late Pleistocene and Holocene times, throughout the lowlands of eastern Wyoming, sagebrush-grassland was the dominant vegetation, while pine and juniper showed no noticeable expansion of their habitats in the last 13,000 years (Markgraf and Lennon 1986:1). Apparently, there was no woodland in the lowlands, at least not as late as 13,000 years B.P. (Markgraf and Lennon 1986:8). The only environmental change that can be detected occurs at 5,000 years B.P., prior to which the environment must have been more mesic than today (Markgraf and Lennon 1986:8). The western part of the Northern Plains has been and

will continue to be influenced by the rainshadow effect, as long as the mountains are present. Therefore, the late glacial history of the western portion of the Northern Plains will be much different not only from that of the adjacent mountain regions (where pollen data from montane sites in western Montana show substantial forestation by ca. 12,000 years B.P.), but also different from the eastern Plains and from the boreal transition to the north (Barnosky 1989:69).

Farther north of Wyoming and Montana, in the neighbouring grasslands of southern Alberta and Saskatchewan, there are also very few paleoenvironmental records due to the lack of suitable locales for pollen preservation (see Beaudoin 1993). Beaudoin (1993:93) noted that the records that are available are usually relatively short, and only a few extend to the early Holocene. Studies of the paleoenvironmental records that do extend to the early Holocene, however, indicate that the early to middle Holocene was characterized by a much warmer and drier climate than that of today. For example, paleoenvironmental data from Chappice Lake in southeastern Alberta indicate that extreme water level changes and frequent and severe droughts occurred from 7,300 to 6,000 years B.P. (Vance et al. 1992; Vance et al. 1993). These conditions likely resulted from a warmer, drier, and more variable climate than that of the present, and possibly reflect atmospheric circulation patterns driven by enhanced seasonal insolation variation (Vance et al. 1993:115). At the Horseman site in southwestern Saskatchewan, paleoenvironmental records indicate that by 13,000 years B.P. the surrounding area was ice-free, and that although the climate was cooler than present, it was warm enough to support biota similar to that found today in the region (Klassen 1994:1833). Sage and grasses dominated the vegetation, with willow present around depressions, and other deciduous and coniferous trees also present. Klassen's (1994:1833) note that this evidence suggested a semiarid grassland setting, accorded with Barnosky's (1989) interpretation for the Gardipee Lake site in Montana. Data from the Horseman site further suggest that by about 9,000 years B.P. in southwestern Saskatchewan, the climate had become warmer and drier than at present (Klassen 1994:1835). The preliminary results of a study of plant macrofossils recovered from the Andrews site in southern Saskatchewan indicate a transition from a late glacial woodland, indicative of a cooler and wetter climate influenced by the retreating Laurentide glacier, to an early Holocene grassland on the Canadian prairies (Yansa 1995). Last, at another southwestern Saskatchewan site, Harris Lake, the pollen stratigraphy indicates that a forest-grassland-shrub mosaic had developed in response to the beginning of more arid and warmer conditions, which were well underway by 9,000 years B.P. (Sauchyn and Sauchyn 1991; Last and Sauchyn 1993).

Turning to faunal data, one finds few vertebrate records of glacial age on the northern Great Plains, but those studied essentially support environmental reconstructions based on pollen data (Barnosky, Grimm, and Wright 1987:263). Overall, late Pleistocene faunas from Northern Plains sites indicate increasing grasslands and aridity towards the west (Graham and Mead 1987); this finding correlates with pollen data (Barnosky, Grimm and Wright 1987:264). However, further south, fauna from the Hell Gap site (Roberts 1970, see above) and the Agate Basin site (Walker 1982a, see below) indicate the possibility of late glacial forest or parkland containing forest and grassland in some areas on the Plains of eastern Wyoming.

In a detailed analysis of late Pleistocene-early Holocene vertebrate fauna, Walker (1982a:274-276) argued that the fauna recovered from the Agate Basin site in eastern Wyoming as well as other recent faunal studies for the Wyoming area support Hoffmann and Jones' (1970) and other researchers' (see Walker 1982a:274 for references) arguments for the presence of what has been defined as "steppe-savanna" or "steppe-tundra" conditions in the Northwestern Plains/Wyoming Basin region during full glacial and late Pleistocene times. More specifically, the Folsom faunal assemblage (dated at $10,789 \pm 120$ and $10,665 \pm 85$ years B.P.) recovered from the Agate Basin site contained species that today occupy steppe/grassland habitats, as well as four montane or mesic rodents and one steppe form; this evidence suggested that the local environment during the deposition of the fauna was possibly much different from the modern situation (Walker 1982a:302). The combination of the long-tailed, heather, red-backed, and meadow voles in the Folsom faunal assemblage has suggested to Walker (1982a:303) that the arroyo bottom in which the Agate Basin site was located was much more mesic but not saturated during late glacial times. Of course, this conclusion is accurate only if these small, relatively immobile mammalian species were characterized by similar environmental requirements during the late Pleistocene as they are today.

The more diverse late glacial fauna present in the Folsom components of the Agate Basin site also has suggested an extensive grass and forb community in the bottom of the arroyo around 10,780 years B.P. (Walker 1982a:303). In addition, studies have indicated that a mesic meadow soil association had been present over the entire arroyo floor in the vicinity of the Folsom occupation (Walker 1982a:303). The presence of ranid frogs in the Folsom level has been interpreted as further evidence that relatively mesic conditions had been present at that time (Walker 1982a:303), although their presence could have been due to local spring activity (Charles Schweger, personal communication 1995). In addition to the grasses and the forb understory in the Folsom arroyo, the habitat requirements of the red-backed and heather voles, and possibly the

long-tailed vole, have indicated that trees may have also been present in the arroyo bottom (Walker 1982a:303). The presence of the sagebrush vole, sage grouse, and pronghorn, all which are associated closely with sagebrush, have suggested the possibility of sage-covered uplands (Walker 1982a:303). A probable vegetational reconstruction of the arroyo bottom for the Folsom time period, based on these microfaunal associations and suggestive of more mesic habitats, includes Kentucky bluegrass, big bluegrass, tufted hair grass, slender wheatgrass, sedges, wild rose, quaking aspen, western snowberry, wild geranium, and mountain big sagebrush as dominants, with probably other forms of vegetation as subdominants (Walker 1982a:303).

Four to five hundred years later, during the occupation of the Agate Basin site area by Hell Gap people, the wet meadow covering the bottom of the arroyo was starting to dry out, with the probable loss of the shrub and small tree understory, and with the likely reduction in the overall amount of boreal-type cover in the area of the site (Walker 1982a:304-305). Basing his view on faunal data and areas of sympatry (i.e., areas of overlapping modern ranges of mammals from a faunal assemblage), Walker (1982a:306) argued that yearly temperatures were likely warmer during the Hell Gap occupation than during Folsom times, with a longer frostfree period in addition to decreased precipitation. An environmental shift from a steppe/tundra-like biome to a more grassland biome has been postulated for the Northwestern Plains region, occurring between 14,000 and 11,000 years B.P. (see Walker 1982a:308 for references). Walker (1982a:308) concluded that the Folsom and Hell Gap faunal assemblages recovered from the Agate Basin site in eastern Wyoming reflect the continuation of this late Pleistocene environmental shift, with progressively fewer amounts of tall grasses, more shortgrass types, and a more extensive sagebrush community. This environmental shift has also been supported by recorded shifts in faunal compositions at Natural Trap Cave in north central Wyoming (Walker 1982a:275). Basing his interpretation on microvertebrate data, Walker (1982a:307-308) suggested that these environmental and climatic changes at the end of the Pleistocene in the Wyoming region were apparently not as abrupt as previously assumed but rather more gradual, occurring over several thousand years.

In summary, the northern Great Plains apparently experienced increased drought in the early post-glacial, some time after 11,200 years B.P. (Barnosky, Anderson, and Bartlein 1987:314). Overall, warmer and effectively drier summer conditions after ca. 10,500 years B.P. were present throughout most of northwestern North America. This conclusion has been based on the presence of more xerothermic vegetation than that of

today, and by the northward shift of the arctic tree line in the early Holocene (Barnosky 1989:70; Barnosky, Anderson and Bartlein 1987). These vegetation changes, apparently caused by both direct and indirect effects of the amplified seasonal cycle of solar radiation between 12,000 and 6,000 years B.P. (Kutzbach 1987; Kutzbach and Guetter 1986), resulted in greater radiation in summer, increased temperatures, and decreased effective moisture in the northwestern United States (Barnosky 1989:70).

NORTHERN PLAINS PALEOINDIAN SUBSISTENCE AND SETTLEMENT STRATEGIES

Introduction

Over the long-term, climatic factors are the major determinants of the distribution, abundance, and availability of prey species, and hence greatly influence human settlement, resource exploitation, and patterns of social interaction (E. A. Smith 1991:71). As demonstrated above, during the late Pleistocene, especially Clovis times, North America was experiencing unique and dramatic climatic, geologic, and ecological change with continental deglaciation (Figure 2), and was highly variable across time and space (Meltzer 1993a:301). To cope with these changing conditions during the late Pleistocene and their subsequent effects, the Paleoindian cultures in North America must have been forced to develop new and variable strategies (Bamforth 1988; Bonnichsen et al. 1987; Kelly and Todd 1988; Martin et al. 1985). The following discussion will focus upon this larger picture of subsistence and settlement strategies practised by Northern Plains Paleoindians, especially as suggested by the Paleoindian archaeological record and general hunter-gatherer data, with consideration of the reconstruction presented above for late Pleistocene Northern Plains environmental conditions.

Paleoindian Subsistence Patterns: Were They Big Game Hunters or Not?

As is evident from the discussion of paleoenvironmental data and reconstructions provided above, and as Meltzer (1993a:302) noted, North American late Pleistocene environments were much richer and quite unlike any of those faced by ethnographic or present-day hunting-gathering groups. Environments in which early Paleoindian people lived were species rich, and, consequently, likely had relatively fewer numbers of individuals per species (Meltzer 1993a:302). If large herds of bison, mammoth, and caribou were not present during late Pleistocene times and thus

unavailable for specialized predation by human hunters, perhaps, as Meltzer (1993a:302) suggested, specialization by early Paleoindian people may not have been possible across much of North America.

In fact, subsistence specialization among North American native groups was relatively rare; instead, it appears that many groups actually specialized in being generalists (Meltzer 1993a:300). In a review of ethnographic records, Meltzer (1993a:300) discovered that only eight percent of all North American groups for which data were available practised some form of specialized hunting. He found that specialized hunting and fishing occurred in restricted environmental settings, that is, in regions like the western Plains or Arctic that were relatively treeless, monotypic, low diversity environments with large numbers of a single species such as caribou and bison (Meltzer 1993a:300).

As noted by Meltzer (1993a:300), however, ethnographic accounts clearly indicate under closer examination that these so-called specialized groups did not have entirely specialized diets. Although Inuit on the sea-ice relied on meat for a major portion of their subsistence because there was not much else available on the ice (Raymond Le Blanc, personal communication 1993), there are references indicating that many arctic populations did not practise a narrow specialization in whale and caribou hunting. For example, Nagy (1994:69-85) described a much wider subsistence base for the Inuvialuit that also included the hunting of seal, polar bear, birds, and ground squirrel, as well as fishing and the gathering of various kinds of berries, roots, and other plants. Likewise for many subarctic populations characterized as specialized caribou hunters, several accounts suggest that some of these northern native groups practised more diversified subsistence strategies. For instance, Hearne's (1971) account indicates the wide variety of resources exploited by Northern Chipewyan Indians for food and raw material. These resources included large game such as caribou, moose, and muskox, small game such as hare and beaver, numerous species of fish, birds such as partridge, ducks, and geese, and various types of berries. A similar situation is evident for Plains populations. For example, both McClintock (1992:238) and Grinnell (1962:203-207) illustrated that the diet of Plains groups was much more varied than a simple focus on bison, with the exploitation of sarvis berries and other types of berries, the gathering of various roots (especially camas), the collecting of eggs and vegetable foods such as wild turnip, onion, and rhubarb, and the hunting and/or snaring of duck, geese, rabbit, elk, deer, antelope, mountain sheep and goats, and other game. As well, Denig (1930:582-583) outlined the great variety of roots and berries, and animal and bird species exploited as food resources by prairie hunting tribes of the Upper Missouri;

he also noted the importance of wild berries, roots, and fruits in feasts and ceremonies and in the general diet, especially during times when meat was scarce.

Based on ethnographic, anthropological, and archaeological studies of hunter-gatherer subsistence strategies in arid ecosystems that indicate the importance of edible plants and small animals over medium to large game animals (see references cited in Guenther 1991), Guenther's (1991:18) argument even went as far as to suggest that North American Plains hunter-gatherers were actually dependent upon gathering wild plant foods. This argument is made in spite of the fact that many archaeologists, including Frison (1978:364), believe that hunting was more important than gathering for populations living on the Northwestern Plains. While this claim of dependence on plant foods is certainly debatable, there are ethnographic references to support the view that populations across the Plains utilized a considerable range of plant species and, moreover, considered these resources very important. For example, it has been recorded that the Blackfoot of the Northern Plains used and had knowledge of at least 185 species of plants (see Johnston 1982). Wedel (1961, 1986) provided an overview of the numerous useful and edible plants exploited by hunter-gatherers throughout the Plains. Some of the more important species included the prairie turnip (Psoralea esculenta); the groundnut (Apios americana); the starchy tubers of the arrowhead (Sagittaria); the roots of the bush-morning glory (Ipomoea leptophylla); the roots of the Jerusalem artichoke (Helianthus tuberosus); the seeds from the sunflower (Helianthus annuus); various types of nuts such as hickory, black walnut, pecan, and hazelnut in the southeastern regions of the Plains; and numerous wild fruits and berries such as the chokecherry, wild plum, buffalo berry, wild currant, gooseberry, saskatoon, and serviceberry.

Johnston (1969, 1982) and Hellson and Gadd (1974) clearly demonstrated, for the ethnographic Blackfoot populations on the Northern Plains, their extensive use of floral resources, not only as food items, but also for medicinal and ceremonial purposes, as dyes and perfumes, and for construction materials and the manufacture of tools and crafts. As well, McClintock (1992) illustrated the importance of berries not only in the diet of Blackfoot peoples as a highly desired food resource (McClintock 1992:466), but also in ceremonial and spiritual aspects of life as sacred foods in ceremonials, and as valued gifts given to visitors and other peoples with whom social contact and obligations were desired (McClintock 1992:367, 408, 467). The importance and value given to plant resources by ethnographic Plains populations is obvious in McClintock's (1992:363-364) account of two Blackfoot women who were industrious collectors of medicinal herbs and edible plants, whether they were residing in camp, on the trail, in

the forest, along streams, or even on the prairie. He noted that the women never lost an opportunity for collecting, and would even stop the outfit when moving on the trail in order to secure various plant specimens.

In view of the ethnographic data, as outlined above, that indicates even so-called bison hunting "specialists" utilized a wide range of resources including plant species, I agree with Meltzer (1993a:303) that it is highly improbable that early Paleoindian populations were all specialized big game hunters using similar strategies over the entire continent. Moreover, the assumed continent-wide Paleoindian features such as reliance on high quality exotic lithics, similarity in points and assemblages, and high mobility (e.g., Haynes 1980, 1982; Kelly and Todd 1988), may be more apparent than real (Meltzer 1993a:295). As well, new radiocarbon dates indicate that early Paleoindian cultures, especially Clovis, were not necessarily a synchronous phenomena across North America (Meltzer 1993a:304). Instead, as Meltzer (1993a:303) emphasized, numerous distinct climatic and biotic zones of North America would have presented very different adaptive challenges to early Paleoindian groups. Evidence from the western area of North America (Willig 1991), from the montane region of Montana (Davis 1993), from the northeast boreal regions (Dincauze 1993; Lepper and Meltzer 1991), from the southeast region of North America (Dunbar 1991), and even from the Southern Plains (Johnson 1991) all suggest that early Paleoindians exploited a wide variety of plant and animal species (see Meltzer 1993a:303, 1993b:160) while practising diversified, generalized, and regionally distinct economies with reduced mobility in many cases.

For example, at the Lehner site in southeastern Arizona, excavations recovered not only mammoth bone, but also burned bear, horse, bison, tapir, rabbit, and muskrat remains (Haury et al. 1959; Haynes 1982:390; Johnson 1977:71-72; Meltzer 1993a:303). As well, at the Lubbock Lake Paleoindian site in Texas, evidence was found for a wide range of species that were possibly exploited by the Clovis inhabitants, including mammoth, horse, camel, bison, coyote, wolves, short-faced bear, jack rabbit, wild turkey, muskrat, surface-feeding ducks, geese, and turtle (Johnson 1977:72-74, 1987:158; Johnson and Holliday 1989:149). Evidence for butchering, marrow extraction, and processing included cut lines and marks, controlled breakage, and crushing, which were evident on camel bone, short-faced bear bone, wild turkey bone, and mammoth bone (Johnson 1987:121-123). For post-Clovis Paleoindian cultures at Lubbock Lake, bison, pronghorn antelope, deer, jack rabbit, cottontail, grouse, surface feeding ducks, geese, and muskrat were exploited (Johnson 1987:158; Johnson and Holliday 1989:151). Evidence for butchering, marrow extraction, and processing was

identified for bison bone, while cut lines and marks were identified on muskrat and geese bone, and consistent breakage patterning suggesting disjoints was noted for both muskrat and duck (Johnson 1987:124-126). At the eastern Paleoindian site of Shawnee-Minisink in Pennsylvania, Dent and Kaufman (1985:72) have recorded the presence of fish remains and a great variety of seed types (Meltzer 1993a:303).

There is also similar evidence, in some cases, for a more broad-spectrum use of fauna and other resources by Paleoindian peoples living on the Northern Plains and adjacent mountain region, specifically at sites such as the stratified occupation site of MacHaffie in west-central Montana and the Indian Creek site in the northern Montana Rockies (Figure 3; Table 1). At the MacHaffie site, the presence of bison, deer, rabbit, and wolf strongly indicates the practice of a mixed-species hunting adaptation by Folsom complex peoples around 11,000 to 10,500 years B.P. (see Davis 1993:267). As well, prey species diversity is also reflected in the Folsom diet at the Indian Creek site, with the discovery of bison, marmot, hare, prairie dog, and vole remains (see references in Davis 1993:270-271). As Davis (1993:265, 274) stated, it is increasingly apparent that not all Paleoindians living in the ecological variability of the Montana area were specialized big game hunters; instead, as is suggested by the variability in faunal, lithic, and other Paleoindian assemblages, they were versatile hunter-gatherers capable of sustaining themselves using a wide variety of subsistence strategies dependent upon local resources, preferences, and available technology and knowledge. Roberts (1935:32, cited in Wilmsen 1974:24) indicated that cut, broken, and split animal bones recovered from the deposits at the Lindenmeier site, a Folsom campsite in Colorado, were identified as being from bison, fox, wolf, and rabbit. Similarly, at the Agate Basin site, extensive cultural modification in the form of breakage and cut marks was identified on pronghorn material recovered from Folsom levels (Walker 1982b:270-271). Butchering and/or processing marks were also identified on bones from other small mammals represented in the Folsom faunal assemblage (Walker 1982b:273-274). Several series of cut marks suggesting defleshing or disjoints were identified on wolf, medium-sized canid, and fox bone (Walker 1982b:273). Breakage patterns and burning of jack rabbit bone likely also related to cultural activity (Walker 1982a:285, 1982b:273-274).

Caution must be noted, however, that, although the remains of smaller animals are present in many of these Paleoindian sites, there can be problems unquestioningly assuming that all these animals were used as food sources, without considering taphonomic aspects. Small animal remains can be incorporated into archaeological deposits through many natural processes (Schmitt and Lupo 1995:497). As Schmitt and

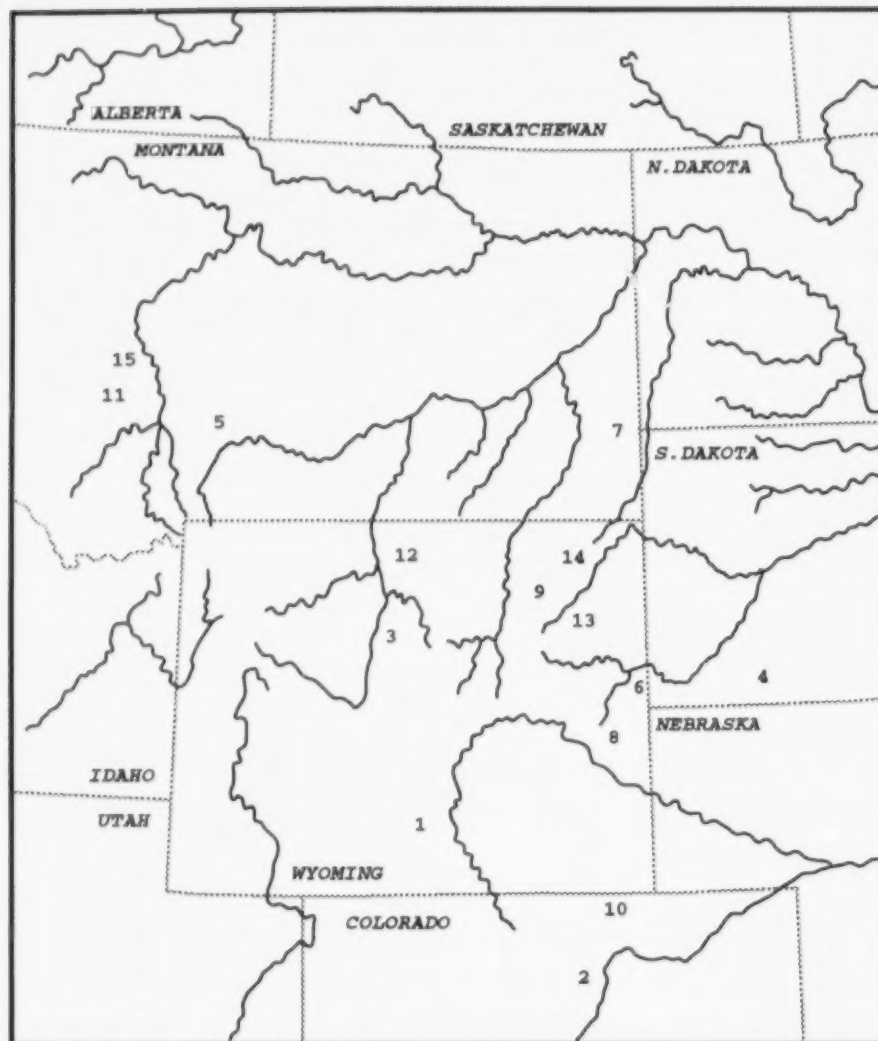


Figure 3. Location of Reported Early Paleoindian Sites on the Northern Plains
(modified from Frison 1991a:40).

KEY	NAME	LOCATION	SITE TYPE	DATING	REFERENCES
1	Union Pacific	Wyoming	Mammoth kill	11,280±350 B.P.	Irwin et al. 1962; Frison 1991a
2	Dent	Colorado	Clovis mammoth kill	11,200±500 B.P. 10,800±110 B.P. 10,710±90 B.P. 10,670±120 B.P. 10,660±170 B.P. 10,600±90 B.P.	Figgins 1933; Sellards 1952; Haynes 1966; Frison 1991a
3	Colby	Wyoming	Clovis mammoth kill/ processing site	11,200±220 B.P. 11,200±200 B.P. 10,864±141 B.P.	Frison and Todd 1986; Frison 1978:86-110, 1991a:150-155
4	Lange-Ferguson	South Dakota	Clovis mammoth kill/ butchery site	11,140±140 B.P. 10,730±530 B.P. 10,670±300 B.P.	Hannus 1990a, 1990b; Frison 1991a
5	Anzick	Montana	Clovis cache/burial	10,940±90 B.P. 10,820±100 B.P. 10,710±100 B.P.	Lahren and Bonnichsen 1974; Frison 1991a:39-41; Jones and Bonnichsen 1994
6	Sheaman Site, Agate Basin Locality	Wyoming	Clovis campsite	10,690±105 B.P. 10,030±280 B.P.	Frison and Stanford 1982; Frison 1991a
	Fenn Clovis Cache	Unknown (Utah, Wyoming, Idaho area)	Clovis cache	-	Frison 1991a:41-49

Table 1. Reported Early Paleoindian Sites on the Northern Plains, ca. 11,000-10,500 years B.P. This table does not represent an exhaustive list of Northern Plains early Paleoindian sites, but includes those sites that are from published sources.

KEY	NAME	LOCATION	SITE TYPE	DATING	REFERENCES
7	Mill Iron	Montana	Goshen camp/kill site	11,570±170 B.P. 11,560±920 B.P. 11,360±130 B.P. 11,340±120 B.P. 11,320±130 B.P. 11,010±140 B.P. 10,990±170 B.P. 10,770± 85 B.P. 10,760±130 B.P.	Frison 1988, 1991a
8	Hell Gap	Wyoming	Stratified multi-component Paleoindian camp	10,850±500 B.P. Agate Basin level 10,290±500 B.P. 10,090±200 B.P. Midland occupation	Irwin-Williams et al. 1973; Frison 1991a
9	Carter/Kerr-McGee	Wyoming	Stratified multi-component Paleoindian kill/processing site	10,400±600 B. P. Folsom level	Frison 1984, 1991a
10	Lindenmeier	Colorado	Folsom camp	11,200±400 B.P. 10,780±375 B.P. 10,780±135 B.P.	Roberts 1935, 1936; Wilmsen 1974; Wilmsen and Roberts 1978
11	Indian Creek	Montana	Stratified multi-component Paleoindian camp	10,980±110 B.P. 10,630±280 B.P. Folsom components	Davis and Greiser 1992

Table 1. Reported Early Paleoindian Sites on the Northern Plains, ca. 11,000-10,500 years B.P. (cont'd).

KEY	NAME	LOCATION	SITE TYPE	DATING	REFERENCES
6	Agate Basin	Wyoming	Multi-component Paleoindian kill/camp	10,780±120 B.P. 10,665±85 B.P. 10,375±700 B.P. Folsom components	Frison and Stanford 1982; Frison 1991a
12	Hanson	Wyoming	Folsom camp/workshop	10,700±670 B.P. 10,300±150 B.P. 10,080±330 B.P.	Frison and Bradley 1980; Frison 1991a
13	Adobe	Wyoming	Folsom hunting stand	-	Hofman and Ingbar 1988
14	Rocky Foolsm	Wyoming	Redeposited Folsom assemblage	-	Kornfeld 1988
15	MacHaffie	Montana	Multi-component camp Folsom and Scottsbluff occupations	-	Forbis and Sperry 1952

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Table 1. Reported Early Paleoindian Sites on the Northern Plains, ca. 11,000-10,500 years B.P. (cont'd).

Lupo (1995) demonstrated with their analysis of the faunal assemblage from Rock Shelter, a Fremont site in Utah, by considering taphonomic histories, a much different and likely more reliable picture of subsistence behaviour can be produced as opposed to one that is based on the assumption that all fauna from an assemblage represent cultural refuse. In some Paleoindian cases, taphonomic aspects are considered to a certain degree, as illustrated by Johnson's (1987:120-121) examination of the possible modification of the Lubbock Lake faunal assemblages through fluvial and carnivore processes, and her attempts to identify human modification through analysis of cut marks, breakage, and crushing. For other Paleoindian sites, however, especially those excavated in the earlier part of the 1900s, taphonomic aspects concerning faunal assemblages were rarely, if at all, considered. It is evident that before making inferences about subsistence strategies of prehistoric groups, archaeologists must attempt to identify the mechanisms responsible for the inclusion of archaeological faunas (Schmitt and Lupo 1995:510). This practice is especially needed in Paleoindian studies, not only with regard to the small animals present in the faunal assemblages, but also with regard to the large mammals recovered from archaeological deposits.

While direct evidence for plant exploitation by Paleoindian peoples is relatively sparse in comparison to the focus on the more visible evidence for faunal exploitation, there is some indication that Northwestern Plains/Foothill-Mountain Paleoindian populations were not adverse to using plant resources. For example, at the Barton Gulch site, a 9,000 year old site in southwestern Montana, in addition to abundant bone from deer, rabbit, canid, porcupine, and rodents, there was also a large quantity of charred seeds of goosefoot and prickly pear recovered (see Aaberg 1993). Aaberg (1993:154) noted that because numerous features were loaded with charcoal and plant materials, plant gathering and processing appeared not to have been a casual activity at Barton Gulch; furthermore, Aaberg was inclined to infer that it was highly possible that patterned exploitation of plant resources may have been in place by mid-Paleoindian times.

The earliest appearance of grinding tools (i.e., manos and grinding slabs) suggesting the systematic use of plant resources on the Northern Plains has been documented at several late Paleoindian sites also in the foothill-mountain regions (see Frison 1991a:332-333). During the subsequent Early Plains Archaic period (approximately 8,000-5,000 years B.P., as defined by Frison 1991a), material evidence for systematic plant use, including pit houses with fire pits and grinding stones, increases in frequency in these foothill-mountain sites (Frison 1991a:79-88). Archaeological evidence indicates that not until the Middle Plains Archaic period

(approximately 5,000-3,000 years B.P.) did populations move into the open plains and intermontane basin areas, at which time the presence of grinding tools and the use of stylized forms of food preparation pits for roasting both plant and animals foods proliferated (Frison 1991a:88-101). Clearly, Plains archaeologists, including those focusing on the Paleoindian time frame, need to consider the probability that systematic plant use was a central and important part of the subsistence of populations occupying the North American Plains and adjacent foothill-mountain region (see further detailed discussion in Aaberg 1993).

Other evidence to suggest more broad-based economies of many early Paleoindian groups is less direct and obvious. As Meltzer (1993a: 303) noted, most Clovis points discovered in the southern High Plains region have been located on the edges of old lakes and marshes, so it is apparent that many of the activities of these early Paleoindians were being conducted near shallow water. Furthermore, since impact fractures that result from compressive stress applied to the distal end of a point are common in later Paleoindian and Archaic bison kills but extremely rare among Clovis points, Meltzer (1993a:303) suggested that Clovis points were being hafted and used as knives rather than solely as projectile points. In addition, smaller numbers of animals are generally characteristic of earlier Paleoindian bison kills of Clovis and Folsom age (Hofman and Ingbar 1988:343; Kelly and Todd 1988:238), whereas much larger bison kills consisting of 100-200 animals are not present in the Plains archaeological record until later Plainview and Hell Gap times (Meltzer 1993a:302). It is possible that this pattern of fewer animals in earlier kills does not necessarily indicate that early Paleoindians were incapable of killing large numbers of animals in mass kills, but rather may be reflecting a change in bison behaviour from solitary, small group behavior during the late Pleistocene to large herd behaviour during the early Holocene (Frison 1991a:163-164). Apparently it was not until the early Holocene that the numbers of bison increased on the Plains, reaching densities that were necessary for successful communal kills of larger numbers of animals (see related discussion in Guthrie 1980:70-71).

Furthermore, it must be remembered that animal resources can be acquired through methods other than active hunting, one of these being the activity of scavenging. Inuit groups have been known to scavenge dead bowhead and blue whale carcasses that have washed ashore, being able to eat the meat even if the carcass was several years old, as the inner meat would not have spoiled in that time (Nagy 1994:34, 70). Among the modern Hadza and other African groups, scavenging is not a distinct strategy that conflicts with other subsistence activities, but in essence is a regular part of

their routine collecting practices (see Bunn et al. 1988:423-426; O'Connell et al. 1988). All Hadza, men and women included, continually and eagerly monitor the flight of vultures and the nighttime calls of lions and hyenas as markers of scavenging opportunities, and quickly act upon them (O'Connell et al. 1988:357). O'Connell et al. (1988:357) recorded an instance in which adult women, armed only with digging sticks, appropriated a kill from a leopard. For the Hadza, then, the activities of hunting and scavenging are closely linked, with scavenging yielding approximately 20 percent of all medium and large mammal carcasses procured (O'Connell et al. 1988:356, 361).

In addition to alternative methods to acquiring animal resources, it must be noted that hunting, especially of larger game, is not necessarily always highly predictive and as reliable as some researchers tend to portray it. In some cases, hunting excursions probably failed as often as they succeeded. For the !Kung, vegetal and animal resources are thinly and unevenly distributed in the bush, and hunting success depends as much on luck as skill. As a result, any individual man cannot count on success; in this context, sharing of meat becomes an essential form of social insurance and a way of distributing food to those who do not have any (Draper 1975:105). With regard to North American Plains groups, despite the assumed efficiency and reliability that many archaeologists have associated with Plains communal hunting methods such as the pound and cliff drive for the bison, there are numerous accounts, as Klein (1983:149) pointed out, indicating that these methods often failed (see references cited in Klein 1983:149; see also Fidler's accounts in Haig 1991:36, 37, 40). The possibility thus exists that, in general, large communal hunts were not necessarily the norm, but rather were relatively rare events because at times they could be unsuccessful, their outcomes not entirely certain. This is not to say that these communal strategies were not important. Such an event requiring intense preparation, planning, and large inputs of labour was probably surrounded with much significance, important not only for providing subsistence and related needs, but also resulting in group aggregation and communal efforts, and allowing the performance of ceremonial activities and the reaffirmation of ties, alliances, and friendships through trade and mate selection. However, given the small scale and size of sites, and the evidence indicating relatively low population densities for early Paleoindian groups, these types of communal hunting methods were definitely not practised to the extent or on such a massive scale, or even in the same manner--if at all--as they were in later prehistoric periods on the Plains.

Given the fact that scavenging is a feasible subsistence strategy, and that hunting, either communal or individual, is not always completely reliable, it is highly plausible, as Gary Haynes (1991) postulated, that Paleoindian peoples practised

scavenging of already dead mammoth and other large game as a frequent part of their subsistence activities. While scavenging would never have been a primary subsistence activity due to its highly variable returns and general unpredictability (O'Connell et al. 1988), it is possible that it could have been an important strategy that was integrated into the standard subsistence activities of Paleoindian peoples. This interpretation does not necessarily mean, however, that Paleoindians did not actively hunt. Although the active hunting of mammoth and other large Pleistocene fauna may not have been a routine and regular event for Paleoindians, it is conceivable and likely that it was done on occasion; supporting this view are ethnographic accounts indicating that humans are capable of successfully hunting elephant (e.g., Marks 1976; see also Johnson et al. 1980 for a review of ethnographic and ethnohistoric accounts of elephant hunting methods), as well as archaeological evidence suggesting that it was done. Meltzer (1993a, 1993b) made similar claims that, by arguing for a more generalized subsistence base, he was not implying that Clovis groups had been incapable of hunting Pleistocene megafauna. On the contrary, projectile points have been demonstrated to be highly efficient weapons (Meltzer 1993a:306). The central question, as Meltzer (1993a:306) noted, is whether hunting megafauna was an important or even common part of the Paleoindian diet, or rather, if Paleoindians killed the occasional mammoth and then spent the rest of their life talking about it (Meltzer 1993a:306, 1993b:160; see similar comment in MacNeish 1964:532 who cites a colleague as remarking that Paleoindians in Mesoamerica probably found one mammoth in a lifetime and never got over talking about it). Clearly, it is unrealistic to assume that these populations depended solely upon the active hunting of large game for a living, given that this activity that can be relatively unreliable and highly variable by nature at times, when in fact, smaller game and gathered and collected food resources would have made important and perhaps slightly more dependable contributions to the Paleoindian diet.

It is obvious that the fascination with big game hunting has had a tendency both to mask the actual diversity in Paleoindian economic strategies, and to result in the interpretation of archaeological evidence that does not fit the typical Plains model of mobile hunters highly dependent upon large game as anomalies and exceptions, or as responses to extreme and rare conditions. For example, despite the diversity of faunal remains recovered from the early Paleoindian site of Indian Creek, the idea of Paleoindian populations dependent on big game hunting still pervades Davis and Greiser's (1992) interpretations, most apparent in their statement that "big-game-reliant hunter-gatherers also collected and utilized diverse lesser species" (Davis and Greiser 1992:276), and in their suggestion that this broad-spectrum use of fauna, rather than

perhaps indicating that a more broad-spectrum subsistence economy was common and routine for early Paleoindians, may instead indicate food resource marginality (Davis and Greiser 1992:280). This argument, however, carries with it underlying implications that suggest that if the diet of Plains populations was not composed primarily of large game such as bison, the group was under resource stress and forced to exploit secondary and less desirable resources. In other words, there is the implicit assumption that bison was the preferred, desired, and primary food resource of all Plains populations, while all other resources were considered marginal and only exploited in times of resource stress and starvation. In fact, many activities assumed to be infrequent, secondary, and not central, such as the exploitation of plant resources and animal resources other than bison, may actually have been more common than traditionally assumed, not necessarily indicative of resource stress and marginality but perhaps in some cases being the norm rather than the exception.

In summary, growing archaeological evidence and what is known about hunting-gathering societies both support the notion that North American Paleoindian peoples were characterized by regionally distinct groups, exploiting different environments, using diversified strategies and practising broad-based economies with the exploitation of a wide variety of plant and animal resources (see especially discussions in Meltzer 1993a, 1993b). The need for these variable, generalized, and flexible strategies for Paleoindian populations becomes especially apparent with the realization that these groups were facing dramatically changing and variable environments with the retreat of the glacial ice. Specifically for Northern Plains Paleoindian populations, although the archaeological record suggests that they hunted big game, it does not necessarily imply that they were specialized big game hunters. Instead, they were more likely hunter-gatherers who utilized a range of subsistence strategies, including the exploitation of a variety of plant resources and the hunting, scavenging, and snaring of both larger game and smaller animal resources.

Paleoindian Settlement and Mobility Strategies

In relating the organization of hunting-gathering resource procurement to spatial and seasonal patterns of resource availability, Binford (1980) defined a continuum of organization, ranging from foragers to collectors (Bamforth 1988:15). A foraging strategy is characterized by high residential mobility, low-bulk inputs, minimal storage, and small dispersed populations who exploit the environment, as Binford (1980:10) termed it, with a "mapping-on" or encounter strategy. In a logistically-organized

collecting strategy, there are fewer residential moves, an increased reliance on stored foods, and use of the environment in a coarse-grained manner involving the selective use of patches (Stafford 1994:220), all in response to spatial and temporal fluctuations in resources (see discussions of Binford's scheme in Bamforth 1988:15-16; Bettinger 1991:64-73; and Stafford 1994:220-221).

In Binford's scheme, then, foragers move consumers to goods, with frequent residential moves, whereas collectors move goods to consumers, with generally fewer residential moves (Binford 1980:15). When all essential resources are located within the foraging range of a residential base, a foraging "mapping-on" strategy would be successful (Binford 1980:15). In other words, foragers tend to be associated with homogeneous fine-grained environments where there is weak spatial and temporal patchiness in resources (Stafford 1994:221). But under conditions of spatial incongruity, a residential move would not solve the problem, because a move toward one location would reduce access to another (Binford 1980:15). In this situation, a more logistical strategy would be favoured, in which special task groups are sent out to bring back goods to the base group (Binford 1980:15). Moreover, in the case of temporal incongruity, that is, seasonal and inter-annual fluctuations in resource abundance, hunter-gatherers become dependent upon the ability to predict the location and availability of particular resources, primarily because with increased seasonality, many resources are available for delimited periods of time (Kelly 1983:289). These groups, then, must necessarily emphasize and spend more time and effort in collecting information on the location and temporal availability of particular resources (Kelly 1983:289). The most likely means to solve the problem of resource fluctuation in these highly seasonal environments is the development of a storage strategy with appropriate methods for preservation, which in turn favours increasing logistical organization and reductions in residential mobility, at least seasonally (Binford 1980:18).

Hence, among logistically-organized collectors, there are two distinct responses to incongruities in resource distributions (Bamforth 1988:16; Binford 1980). First, special task groups are used to obtain food for larger social groups as a response to the heterogeneous distribution of resources across the landscape (that is, spatial incongruities in resource distribution). Second, a reliance on food storage develops as a response to the heterogeneous distribution of resources over the year (that is, seasonal incongruities in resource distribution).

Does this theoretical model have any applicability or value for determining and explaining Northern Plains Paleoindian hunting-gathering behaviour? More specifically, what are the apparent relationships between late Pleistocene resource

availability and Paleoindian mobility and settlement strategies? Because of the increasing seasonal nature of late Pleistocene-early Holocene environments, the seasonal variation in Paleoindian activity would have been very different from the Plains ethnographic seasonal round. For ethnographically documented populations who were resident on the Northern Plains all year round, during winter, camps were located in sheltered areas along the river bottoms because of the accessibility to water, fuel, and winter ranges for ungulates, especially bison. With spring, human populations left the valleys to get away from potential flooding, and moved out onto the prairie, following bison herds. During the summer, camps were located on the open prairie and high terraces; later in the season, bands gathered together for the Sun Dance encampment. The autumn was considered to be the great bison hunting season, with extensive use of pounds and jumps, and the collection of berries and production and accumulation of winter provisions before the move back into the valleys for winter (see Arthur 1975; Ewers 1988:88-91; Morgan 1979; Vickers 1986:7-8).

Paleoindian activities undoubtedly would have been structured much differently from this seasonal round practised by later Plains groups. As previously noted, climate models indicate that the period between 12,000 and 6,000 years B.P. was characterized by an amplification of the seasonal cycle of solar radiation in the Northern Hemisphere, with the maximum seasonal contrast occurring around 9,000 years B.P. (Kutzbach and Guetter 1986:1728). Early Paleoindian populations present on the Northern Plains from approximately 11,000-10,500 years B.P. would have experienced part of this trend toward warmer summers and colder winters. Even though the trend would be towards increasing seasonality, Paleoindian activities were likely not rigidly structured according to season, given that the environment around them was still in a state of flux and undergoing a very dramatic transition. Paleoindian activities, however, were probably not as loosely structured as those of hunting-gathering groups such as the !Kung, who rely on foods that are more or less available on a year-round basis. There would have been some structuring of Paleoindian activities based on seasonal or temporal variation in crucial resources, but overall the emphasis would have been on flexibility to deal with the on-going and significant changes occurring in late Pleistocene environments. Moreover, this seasonal structuring of activities would not have remained constant, but would have likely varied from year to year.

In addition to temporal or seasonal variation in resources, there is also frequently spatial variation in resources. This concept is often discussed in terms of patchiness, which describes the degree to which resources are clumped rather than dispersed in space, that is, spatial heterogeneity (Winterhalder 1980:151). A patchy

environment is one in which resources are distributed discontinuously across the landscape. If resource distribution is patchy during any particular season, one can assume that this distribution is accompanied by increased aggregations of human populations. Jochim (1976:66) argued that a greater degree of spatial concentration of resources, that is, increased patchiness, means that larger groupings of people are possible because of the greater yield of a single site catchment area. If, on the other hand, resources are dispersed evenly across the landscape, one can assume a fine-grained or dispersed distribution of human populations; that is, only smaller groups are supportable because of the smaller catchment yield.

As previously noted, evidence suggests that Pleistocene environments throughout the Holarctic were characterized by a remarkable diversity of both large mammal and small mammal species, a diversity that likely could have been supported only by a fine-grained environmental mosaic characterized by a diversity of plant communities (Graham and Lundelius 1984:228; Graham and Mead 1987:372; Guthrie 1982; see also discussions in Bliss and Richards 1982 and Redmann 1982). In other words, the presence of a greater diversity of animal species during the Pleistocene essentially implies the presence of more habitats, habitats that were characterized by complex vegetational mosaics and supported by a long and seasonally-diverse growing season. Guthrie (1982, 1984) termed this pattern of a fine-grained mosaic of different habitats as "Plaids." A shift to a shorter and less varied growing season at the end of the Pleistocene resulted in a corresponding shift by the time of the Holocene to a "Stripes" environment. This environment was characterized by greater biotic zonation and thus fewer habitats, favouring simplified faunal assemblages (see Guthrie 1982, 1984). The difference, therefore, would have been that during the Pleistocene, more species and thus more habitats were present with less difference from habitat to habitat, whereas, with the shift to the "Stripes" pattern in the Holocene, there were now a limited variety of species and thus greater homogeneity within each habitat, with marked differences between habitats.

It is clear that for each of these patterns, "Plaids" and "Stripes," the spatial variation in resources was significantly and qualitatively different and would have had major implications for the settlement and mobility strategies of human groups. For late Pleistocene Paleoindian populations, who would have experienced first-hand the spatial variation of resources characteristic of the "Plaids" environment, more habitats would have been encountered during their movements across the land. As a consequence, acquiring resources may have proved easier in the sense that individuals would have been encountering a greater diversity of species that were dispersed in a fine-grained

mosaic across the landscape. In addition, with more species and thus more habitats, human groups could have been less reliant on a single species as a primary resource. Most likely, the target resources of late Pleistocene populations practising a generalized and diversified economy would have been generally dispersed relatively evenly across the mosaic of habitats. There may, however, have been areas in the landscape in which essential resources were also concentrated either all year or at a particular time during the year, especially as a result of the beginning of the transition from the "Plaids" environment of the Pleistocene to the "Stripes" environment of the Holocene.

Predictability, the ability of a hunter-gatherer to find a particular resource based on environmental knowledge, has been identified as a significant factor for hunting-gathering groups (see Bamforth 1988; Jochim 1976), and was surely important to Paleoindian groups as well. The predictability of resources, especially mobile ones, will greatly affect search and pursuit times (Jochim 1976:27-28). In addition to affecting movement across the landscape, and the selection and patterns of resource exploitation, predictability of resources may also affect group size. If resource location, and seasonal patterns and fluctuations are highly predictable, human populations could conceivably live in more and larger aggregations, depending upon whether or not those resources were clustered rather than greatly dispersed. If, however, unpredictability characterized the environment, smaller aggregations are generally assumed (see Bamforth 1988:20-21, 25-26).

The factor of predictability, though, is much more complex than most schemes depict; in fact, the concepts of predictability and unpredictability may be to some degree inappropriate in discussions concerning hunter-gatherer strategies. The term "unpredictability," like the term "forager," implies that hunter-gatherers were not very capable or knowledgeable with regard to obtaining needed and desired resources for survival, that they were essentially helpless within their environments (see also detailed discussion in Kehoe 1993 with regard to the inappropriateness of the term "forager" as shorthand for hunting-gathering populations). Members of hunting-gathering populations, however, had to have been able to predict resource availability in order to survive (Raymond Le Blanc, personal communication 1994). Moreover, increasing evidence indicates that Paleoindians were not, as a rule, colonizers and explorers in entirely unknown and unfamiliar territory and environments, so unpredictability in terms of not being able to estimate the location and condition of particular resources in the environment would probably not have been a major factor. The resources available during late Pleistocene times, therefore, were not necessarily "unpredictable" in terms of yield, location, condition, and mobility to Paleoindian hunter-gatherers; rather, they

are more accurately seen as exhibiting greater variability in these characteristics. This greater variability in resources during the late Pleistocene would have been especially intensified by the beginnings of the shift from a "Plaids" environment with numerous habitats and a diversity of plant and animal species to a "Stripes" environment exhibiting reduced species diversity and fewer habitats. The extinction of Pleistocene megafauna alone would have had a tremendous impact on Paleoindians, whether they were big game hunters or not. Moreover, the increasing seasonality in late Pleistocene-early Holocene environments and changes in forage production would indicate the strong possibility of increasing migratory movement in certain animal species (see related discussion in Bamforth 1988:149). Again, this transition to migratory behaviour would have added to the already high variability and uncertainty of the late Pleistocene environments in which Paleoindian peoples lived. Clearly, their entire world was changing, displaying a degree of variability that North American Paleoindian groups had probably never before experienced.

This consideration of the reliability and "predictability" of resources is closely interrelated with factors of risk and uncertainty. Early work in optimal foraging and decision-making modelling assumed actors possessed perfect information and were indifferent to risk and uncertainty, but more recent works are now considering these variables (see Halstead and O'Shea 1989; Rautman 1993; E. A. Smith 1988, 1991). Specifically, risk refers to variations in outcome that cannot be controlled by the decision-maker (Smith 1988:230). Generally, under scarce conditions, actors will be risk-seeking, while under moderate conditions, risk-averse, and under extreme abundance, risk-indifferent (E. A. Smith 1991:54). Like other hunting-gathering groups, Paleoindian individuals and populations most likely employed various mechanisms and coping strategies to alter the significance of risk and to deal with the increased variability in late Pleistocene environments. For example, sharing between and among bands, storage, trade, information exchange, and cultural transmission are all buffering mechanisms that can be used as a response to variation in an attempt to reduce uncertainty (E. A. Smith 1991:57). For example, !Kung San social relationships that are based on exchange open up a wide range of options to deal with risk and uncertainty, providing a systematic way of ensuring that needs are regularly met (Wiessner 1982:61). As Wiessner (1982) argued, one of the most efficient methods of risk reduction open to hunters and gatherers in environments like that of the !Kung San is a social method of pooling risk through the storage of social obligations; that is, a person creates relationships of mutual reciprocity with others in the population, and thereby spreads losses over a unit that is much larger and more varied than the local

band (Wiessner 1982:65). Moreover, even beliefs and rituals can be used to bring uncertain and risky events and activities under control so that they are no longer considered unpredictable in the minds of the members of the group (Charles Schweger, personal communication 1995; see previous chapter for specific examples relating to the importance of ritual activities among various hunter-gatherers for the success of hunting).

By considering aspects of risk and uncertainty in subsistence reconstructions, a more humanized and realistic picture emerges, with greater emphasis on individual choice, social interaction, and actors who are seen as not necessarily possessing complete knowledge, and who are more constrained by society, rather than viewed as optimizing, rational, purely economic individuals (Smith 1988:224). Risk and uncertainty are clearly inherent in a hunting and gathering way of life, and would have been especially so for Paleoindians since environmental conditions would have been changing relatively rapidly during the late Pleistocene.

Conclusions with reference to the mobility of Paleoindian populations have typically been based on the presence and/or absence of exotic lithic materials in Paleoindian assemblages. While Hayden (1982) argued that the presence of exotic lithics indicated extensive trade networks for Paleoindian times (that is, that lithics were acquired indirectly through trade), others have interpreted the Paleoindian use of exotic lithics as reflecting high mobility; that is, lithics were acquired from the source directly by Paleoindian populations (e.g., Goodyear 1989; Haynes 1980:118-119; see detailed discussion in Meltzer 1989). However, in his attempt to determine the archaeological signatures, if any, for direct and indirect acquisition, Meltzer (1989:12) indicated that both forms of acquisition essentially would result in the same archaeological picture of exotic lithics present in the assemblage. Hence, he concluded that there seemed to be no definitive method for distinguishing between indirect and direct forms of acquisition (Meltzer 1989:30). If a lithic assemblage was composed exclusively of exotic materials, though, it would be logical to assume that the lithics were directly acquired; it is logical simply for the reason that it would not be very advantageous to depend completely upon other groups for one's entire supply of such an essential resource as lithic material (Meltzer 1989:24). As Curran and Grimes (1989:45) observed, in ethnographically-documented hunter-gatherers, it is rare (if not non-existent) that exchange is used as a mechanism for obtaining substantial amounts of lithic raw materials. In spite of these difficulties in distinguishing between direct and indirect acquisition, Meltzer (1993a:305) maintained that there was no convincing theoretical reason to expect exchange in the context of North American Clovis groups; thus, he

argued that at this point lithic sources could be regarded as indicators of the degree of mobility of the group (see also Meltzer 1989:37).

It is apparent that in some areas early Paleoindian populations used lithic materials with sources up to several hundreds of kilometres from their sites, and thus possibly were characterized by a highly mobile lifestyle. In other cases, evidence suggests that the degree of mobility for early Paleoindians may have been significantly reduced (see discussion in Meltzer 1993a:305). Consequently, it is extremely dangerous to generalize for all Paleoindian populations with regard to mobility. For Northern Plains early Paleoindian populations, the present archaeological database (Figure 3; Table 1) indicates that early Paleoindian sites in this region are few in number and relatively small, with no evidence for large scale and stationary physical storage of any kind. Combined with the fact that the late Pleistocene environment, as discussed above, was characterized by extreme and changing temporal and spatial variability in resources, a nomadic, relatively mobile lifestyle would have been most practical for these early Paleoindian peoples. These interpretations, along with the fact that pre-Paleoindian sites are relatively sparse in this region and many other areas as well, suggest that many Paleoindian peoples had expanded their range into or were living in very sparsely and patchily occupied areas. Whether exotic lithics in a Paleoindian assemblage were acquired through various kinds of trade or exchange with other groups, or acquired directly from the source, and thus are indicative of the extent and range of mobility of the group, is currently impossible to determine in any definitive manner. The probability seems great, though, that since they were confronted with the particular circumstances and nature of the physical and social environment of the late Pleistocene, Paleoindian groups would have been characterized by flexibility and variability in their degree of mobility and extent of exchange and trade activities.

A similar situation of flexibility and variability would have characterized Paleoindian settlement and the actual location of sites. While the nature of resources and subsistence activities is a major factor in conditioning site location and demography, it is certainly not the only one. In fact, when locating their settlements, Paleoindian peoples likely and necessarily considered a combination of many factors including the following: the location and accessibility of food resources; the presence of adequate and good shelter, water, both organic and inorganic raw materials for tool production, and fuel; as well as social and political factors such as traditions, ideological and spiritual views of the landscape, and the desire for maintaining trading networks and social contact with neighbouring groups. River valleys may have been important locations for Paleoindian groups especially on the Northern Plains; in these

areas, they were able to exploit the likely greater variability in resources from numerous overlapping habitats and landforms (cf., Adams 1976:107-110, 1978:91-92).

While Binford's scheme of foragers and collectors is considered by some to be an important theoretical contribution to the understanding of hunting-gathering behaviour (e.g., Bettinger 1991:73), I am critical of its tendency to dichotomize and categorize in a static and generalizing manner. Paleoindians cannot be characterized as either foragers or collectors. As demonstrated above, the late Pleistocene environment was not homogeneous, with little spatial and temporal variability in resources; therefore, it seems doubtful that Paleoindians (and the majority of modern human hunter-gatherers) would have exploited the environment solely using Binford's (1980) "mapping-on" strategy. Conversely, there is no strong Paleoindian archaeological evidence for the development of large-scale storage, reduced residential mobility, and the emphasis on central places, as there should be for those practising a highly logistically-organized collecting strategy, as defined by Binford (1980).

Instead, as is highly probable for numerous other hunter-gatherers, the nature of Paleoindian life would have necessitated flexibility and the use of multiple strategies. Since the resource composition of all environments changes from year to year as a result of climatic fluctuations, one may expect to find different strategies being used by hunter-gatherers from year to year. Hence, hunting-gathering groups do not utilize a single subsistence-settlement system, but rather must use a variety of strategies to survive and cope with both seasonal and yearly resource fluctuations in their environment (Kelly 1983:301). Paleoindian populations undoubtedly had to cope with an even greater range of variation than any present today. As a consequence of the continual and rapid environmental and climatic changes characterizing the late Pleistocene, and the resulting changes and variability in the spatial and temporal distribution of essential resources, Northern Plains Paleoindian peoples may have been unable to develop and employ stable and rigidly patterned subsistence and settlement strategies. Instead, flexibility would have been vital for their survival, with a wide variety and range of subsistence and mobility plans practised and available if needed. An important part of this flexibility in Northern Plains Paleoindian subsistence and settlement strategies must have been the potential and capability for exploiting a variety of ecotones when possible. For example, evidence indicates that Northern Plains Paleoindians located especially in the Montana-Wyoming area were able to shift their economic emphasis and procurement locations without much hindrance from the foothill-mountain settings to the open-plains regions, and probably did so continually throughout and over the years (Davis 1993:265; Frison 1992:337). A similar situation

may also have occurred farther north, as suggested by evidence from the Front Ranges of the Canadian Rocky Mountains indicating that Paleoindian populations exploited the foothill-mountain regions during the late Pleistocene-early Holocene (e.g., Fedje et al. 1995).

Summary

In the subarctic boreal forest environment, resources are often localized in specific places, highly scattered and thinly dispersed, and subject to marked and often drastic fluctuations in abundance and availability over time and space (Nelson 1973, 1983:202-209). To deal with this variability, hunter-gatherers of interior Alaska, such as the Koyukon peoples, practised a shifting subsistence economy in which one year they may have emphasized the hunting of big game, while the following year they would focus on small game and fish (Nelson 1983:216). It is highly possible that late Pleistocene populations developed a similar response of continuously shifting their subsistence base to cope with the transition from the "Plaids" environment characterized by a great number of species dispersed over many habitats to the "Stripes" environment characterized by fewer number of species dispersed over fewer habitats. Northern Plains Paleoindian peoples likely relied upon varying strategies to cope with the greater variability associated with this changing late Pleistocene environment. Some of these strategies would have included practising this more broad-based and shifting economy, and possibly emphasizing social contact, relations, and obligations.

The issue of whether or not Paleoindians were colonizing populations is beyond the scope of this dissertation. It can be assumed, however, that even if Paleoindians were not colonizers and were present in regions already populated, these areas, especially as the archaeological record indicates for the Northern Plains, would have been sparsely populated. Because of this assumed sparse population, Paleoindian groups, even if they were resident in populated areas, frequently would have been moving into unoccupied regions. Whether colonizers or not, Paleoindians still would have needed to focus on social contact, information exchange, and flexibility.

With reference to late Pleistocene-early Holocene environments, the increasingly clustered or patchy distribution of many of the resources with the shift from "Plaids" to "Stripes" would have exerted a "pull" on settlement location, as Jochim (1976:52) termed it, as opposed to those resources that are uniformly distributed in space and time. These conditions would have promoted a relatively mobile lifestyle for Plains Paleoindian groups. A mobile lifestyle, however, does not necessarily imply the

high residential mobility and "mapping on" of Binford's forager strategy. Instead, Paleoindian populations would have been characterized by some degree of logistical organization, in that groups would have established base camps that, at times, may have been occupied for relatively long periods, and from which task groups could be sent to obtain a wide range of resources and raw materials. In addition, considering the likelihood of increasing temporal/seasonal variability in resources, some form of storage, whether drying strategies or in the form of obligations, would have been practised.

Therefore, residential mobility for Northern Plains Paleoindian groups would have been flexible, with the degree of mobility fluctuating throughout the year and from year to year, with some seasonal movement, although not structured in the same manner as that which characterized later prehistoric Plains groups. Moreover, for Paleoindian populations, the question of scale, that is, the frequency of the residential moves, and the distance of those moves, must be considered. A factor that is frequently neglected or ignored in this regard is that of the possible possession of watercraft by Paleoindian populations (see detailed discussion in Engelbrecht and Seyfert 1994). The use of watercraft would have greatly expanded the area that Paleoindian groups were able to exploit effectively (Engelbrecht and Seyfert 1994:226), would have facilitated the procurement of exotic lithic material (Engelbrecht and Seyfert 1994:227-228), and would have affected residential mobility, especially with regard to carrying and transporting possessions and resources (Engelbrecht and Seyfert 1994:222).

With the limited Paleoindian archaeological record, it is difficult to state with any certainty the exact nature of their residential mobility. Nevertheless, based on late Pleistocene environmental reconstructions as outlined above, and the current archaeological database for this time frame, it can be suggested that Paleoindian groups did not practise extremely high residential mobility but were more logistically organized, with flexible residential mobility that at times involved frequent moves and perhaps, occasionally, moves of substantial distances, and, at other times, involved few moves and instead focused on base camp locations and task groups. More specifically, decisions relating to the mobility of settlements would have been influenced by factors such as exhaustion of local resources, the need for raw materials or specific resources, seasonal changes, and the desire for contact and exchange with other social groups.

Clearly, both residential and individual mobility would have been necessary for Paleoindian populations as risk-buffering mechanisms, to obtain knowledge about a wide range of resources in case alternative strategies and resources had to be employed if others failed (see Mithen 1990:35-36). Unlike residential mobility, however,

individual mobility for Northern Plains Paleoindians would have been relatively high on a continual basis in order for a person to gather, not only required resources and raw materials, but also information about an environment characterized by increasingly variability (see detailed discussion in following chapter). In essence, based on archaeological evidence to date and what is presently known about hunter-gatherer strategies and the greater variability of late Pleistocene environments, the emphasis for early Paleoindian Northern Plains groups must have been on less structure and rigidity, and upon more flexibility and alternatives in their resource use and settlement and mobility strategies.

CHAPTER VII

ENGENDERING NORTHERN PLAINS PALEOINDIAN SUBSISTENCE AND SETTLEMENT ACTIVITIES

PALEOINDIAN SOCIAL LIFE AND ORGANIZATION

Demographic Aspects and Composition of Paleoindian Groups

Based on the current archaeological database (Figure 3; Table 1) and the current paleoclimatological database for the Northern Plains early Paleoindian time period, and knowledge of the relationship between hunting-gathering strategies, settlement, and resource structure, the assumption can be made that the Paleoindian population was relatively low and sparsely dispersed over the landscape. Furthermore, groups were likely characterized by small numbers of people related by kin and affinal ties. A few archaeologists have attempted to provide actual estimates of band size and population density for various Paleoindian groups. Hester and Grady (1977) provided estimates of band size and territory for Paleoindian populations on the Llano Estacado. Basing their conclusions on ethnographic accounts of hunting-gathering societies, and using statistical analysis of archaeological data such as the number of projectile points, hearths, flintknapping areas, and butchering areas identified at Paleoindian sites, they estimated that the territory of a Paleoindian band on the Llano Estacado had a radius of 90-120 miles (approximately 145-193 kilometres), with the band consisting of six families, or 25 members, of which five to 10 were hunters (see Hester and Grady 1977). Greiser (1985:30) also estimated that the typical late glacial hunting-gathering band had consisted of approximately 25 people, a number that many anthropologists have generally considered as the average number of individuals in most hunting-gathering bands (e.g., Birdsell 1968; see also discussions in Mandryk 1993:43-45 and Wobst 1974:170). In their computer simulation model of Pleistocene overkill, Mosimann and Martin (1975) suggested that by the time their postulated wave or "front" of Paleoindian hunters, sweeping southward from Beringia, had reached Dent, Colorado, approximately 11,300 years ago, the human population had reached 40,000 and the population density within the front was 0.383 persons per square mile (approximately 0.238 persons per square kilometre). This density is in keeping with that noted by Lee (1968:35) for the !Kung hunter-gatherers of the Kalahari desert in the 1960s (i.e., 41

persons per 100 square miles or approximately 0.255 persons per square kilometre). As noted by Mandryk (1993:46-47), most hunter-gatherers have densities of less than one person per square kilometre. Bamforth (1988:160-161), although he did not provide any actual estimates, argued that Paleoindian population densities on the Plains must have been much lower than densities of more recent hunting-gathering societies in the area, primarily because of the relative scarcity of plant foods on the Plains and the absence of agricultural societies on the margins of the Plains.

The nature of the organization and composition of Paleoindian groups would have been fluid and flexible, not only for economic reasons in dealing with late Pleistocene resource variability, but also for social reasons in assisting with the resolution of tensions and conflicts within the group, and in allowing for social interaction and the establishment of mating networks. As Wobst (1974) maintained, smaller bands must function as part of a larger group so that adequate and eligible mating partners are available (see discussion in Mandryk 1993:45-46). Flexibility in organization and composition of Paleoindian groups, coupled with relatively high mobility as noted by Bamforth (1988:160-161), would have been necessary to establish and maintain social contacts and mating networks with widely dispersed groups. Moreover, it is likely that households within the Paleoindian group were composed of related peoples and characterized by extremely fluid membership as with the larger group.

Male and Female Domains and Role Flexibility

While numerous researchers assume that childbirth and child care almost entirely immobilized and restricted women in their everyday activities, this assumption simply does not hold for many hunter-gatherers (see Chapter III), and was likely not valid for Paleoindian populations either. First of all, women who are pregnant or involved in some way in child care would comprise only a portion of all female members of the group. Willows (1991:60) argued that it is unlikely that prehistoric birth spacing intervals were shorter than that observed among contemporary hunter-gatherers (on the average of four years), given the restrictions of the environment and lifestyle. Faced with an even greater amount of variability in late Pleistocene environments and a lifestyle involving relatively high individual mobility and flexible residential mobility, Paleoindian hunting-gathering populations were probably characterized by relatively wide birth spacing intervals, and may have even been capable of deliberately spacing births. Therefore, not all Paleoindian women would

have been constantly pregnant or nursing infants. Second, because of the assumed small numbers of people, the openness and flexibility of the society, and the relative high mobility of the individual, the entire realm of reproduction including child care was likely an arena of active social relations involving both men and women; thus, child care was undoubtedly to some degree a collective and shared effort among the adult and older juvenile members of the group.

Although the domestic/public dichotomy and the assumption that women were confined by reproductive responsibilities to "domestic" chores while men controlled the public domain is entirely inappropriate and distorting for many societies, ethnographic evidence tends to suggest that in many societies, men and women had and do have different domains of social life, spheres of activities and responsibilities, and patterns of mobility, though not necessarily corresponding to this artificial domestic/public division. While cross-culturally the assignment of productive tasks and responsibilities to specific genders is not universal (see Chapter III), normally within a single society certain activities "ordinarily" fall within the sphere of one gender or the other, as Guenther (1991:18-20) noted for Plains populations and Abel (1993:22) noted for eighteenth-century Dene groups. These typical tasks assigned to men and women within a society, however, are often complementary in nature and thus emphasize aspects of interdependency between men and women (see Chapter III). Moreover, the domains and spheres of these male and female activities frequently overlap at some point in many societies (e.g., Solway 1992:51).

Particularly for Paleoindian groups, theoretically these female and male domains would have overlapped and blurred considerably as a result of several factors. One important variable is the degree of mobility of the group and individual. There is some evidence to suggest that relatively higher mobility in a group may encourage and strengthen interdependence and sharing of work among the group's members (see discussion and references in Dahlberg 1981:18). For example, Draper (1975:78, 85-86) discovered that for mobile !Kung groups, obtaining food in the Kalahari entails a similar degree of mobility for both sexes, women and men are equally absent from the camp, and there is a lack of rigidity in sex-typing of many adult activities including domestic chores and aspects of child socialization. Similarly, among the Hadza, the extent of daily hunting and gathering trips for men and women is also the same, ranging from one hour's walk from the residential camp during the dry season to an average of two hours' walk from camp during the wet season (O'Connell et al. 1988:357). In more sedentary !Kung groups, however, certain features of sedentary life, such as the decrease in mobility of women as contrasted with men, and the increasing specialization

of female work and its confinement to the home and village, appear related to a decrease in female autonomy and influence (Draper 1975:78). For Paleoindian groups, it is likely that Paleoindian women were as frequently absent from the camp as men in their daily activities, although their patterns and extent of mobility may have differed to some degree.

In addition to the postulated high individual mobility and flexible residential mobility, perhaps one of the major factors that would have resulted in a considerable overlapping of Paleoindian female and male domains is the need for flexibility in roles and task assignment to cope with the greater variability of the late Pleistocene environment. Given the relatively small group size and consequently the small number of adults who would be shouldering the primary responsibility for providing subsistence and other needs, and given, as well, the changing environment, it would seem highly advantageous had both Paleoindian women and men possessed the necessary skills to survive, interchange tasks, and replace one another when the situation demanded. For example, some of the late Pleistocene resources that Paleoindian groups exploited would have been relatively unreliable, and entailed more search and pursuit time; certainly not all would be located in close proximity to the camp. Hence, there may have been a need for logistical task groups to be sent out to acquire specific resources. The composition of these groups would have been flexible in order to cope with the greater variability characterizing resources and the environment, and to meet the current needs, priorities, and desires of the people; that is, the organization of these task groups and the decisions as to which individuals would accompany them would depend upon what resources were being sought, the individual's particular skills, and what other economic activities were currently being undertaken by the various members of the group. No doubt, groups would have been organized for special purposes, for example, to acquire raw materials, or to hunt and gather certain species of animals and plants. In all likelihood, the individuals most qualified to perform the specific activities planned for the task outing would have been chosen to accompany the group. Again the importance of flexibility and interchangeability in tasks becomes apparent. With task groups leaving others in the primary camp, both groups would need knowledge of basic survival activities to cope adequately until, or if, they reunited at a later time. The emphasis for Paleoindians clearly would have been on negotiable roles, a less rigid definition of masculine and feminine, and more cooperative patterns to survive.

In fact, not only for Paleoindian society, but also for many others, the expectation of rigid task differentiation along sex lines seems to be unrealistic. For example, as Guenther (1991:20) suggested for Plains populations, if a woman was

butchering, or scraping hides, and no male was present, she would not wait until a male was present to retouch an instrument's edge or make a tool (see similar claim in Gero 1991b:170). Similarly, if a male was alone, for example, on a hunting expedition, he would have to cook for himself. Obviously there is ample evidence to suggest that some degree of flexibility in roles, and consequently overlap in male and female domains, frequently occurred in numerous non-state societies. For North American Plains groups, Weist (1980:262) suggested that role flexibility was an important characteristic of their social organization, with women being able to participate in male activities, and, likewise, men able to take on the activities and even roles of women. Similarly, for the !Kung, Draper (1975:93) noted that the lack of specialization and opposition of sexes was highly practical, given the small number of able-bodied adults, especially in the rainy season, when the local group size fell to about 15 people. Thus, it was extremely useful for adults to be relatively interchangeable in function. Last, Sharp (1981:235) argued that the roles of Chipewyan females and males were more flexible to meet the erratic nature of subarctic life, and that members of both sexes had skills necessary to survive in isolation (see also references made in Hearne 1971, as noted in Chapter III, to groups of Northern Indian women and children travelling and surviving on their own).

In the Paleoindian case, the combination of high individual mobility and varying residential mobility, and the probable lack of privacy, the openness of households, and the fact that all members of the society would be moving with the group, meant that women and children along with men would equally be able to see and acquire knowledge about the physical and social world around them. This postulated emphasis on flexibility and interchangeability in performing tasks for Paleoindian populations, however, does not necessarily imply that there were no Paleoindian individuals who had specialized and more highly developed knowledge and skills in manufacturing specific tool or material items, in performing certain subsistence tasks, in the medicinal use of resources, or for directing spiritual rituals and practices. There undoubtedly were specialists among Paleoindian groups. Some tasks, activities, and knowledge would have been the responsibility of specific individuals, and, although this specialization may have generally fallen along gender/sex and age lines, it would not necessarily have been universal and rigid. Group members who did not possess these specialized skills and knowledge would have had to rely upon these specialists in an interdependent manner, most likely through broad networks of kin relations. Thus, it is likely that for Paleoindian populations, male and female tasks and responsibilities would not have completely overlapped and been entirely interchangeable; rather, there would have been

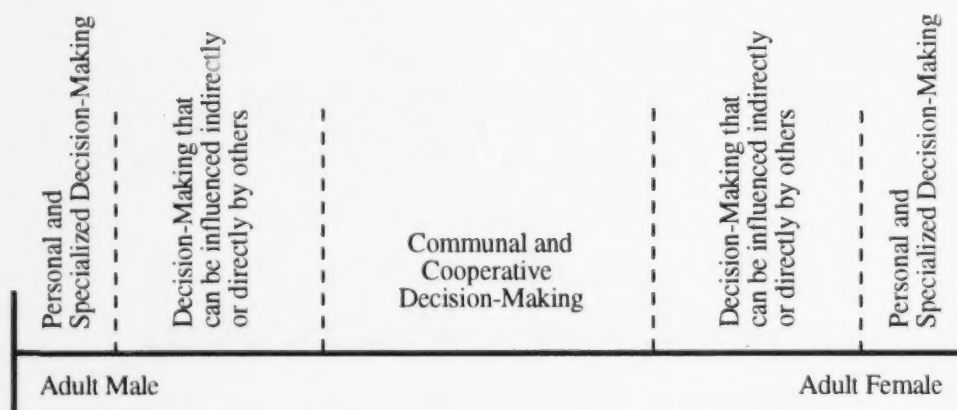
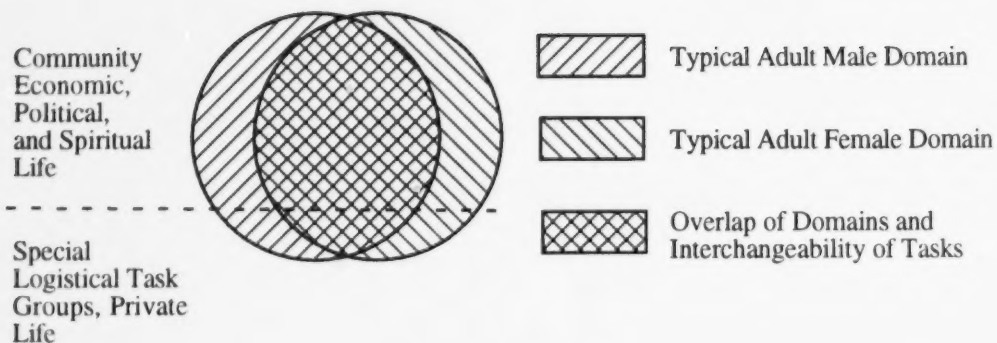
some specific activities and knowledge that would typically have been the specialized responsibility of either men, women, children, certain age groups, or, simply, those individuals who were most qualified or considered appropriate for the role (Figure 4).

PALEOINDIAN DECISION-MAKING

Introduction

The previous chapter has provided a theoretical model of the subsistence and settlement strategies practised by Northern Plains Paleoindian groups, as suggested by the archaeological and paleoenvironmental evidence and general models of hunter-gatherers. The following discussion will now shift attention to the actual actors who practised these strategies, through the consideration of decision-making processes. While the detailed discussion of Paleoindian decision-making presented here is based to a large extent upon how modern ethnographic hunter-gatherers make decisions (some would, therefore, argue that it is an inappropriate use of ethnographic analogy for prehistoric Paleoindian populations), in fact, decision-making processes of any human group or individual, as Mithen (1990:52-53) argued, are similar; that is, the biological capacities for decision-making have likely been constant since the evolution of modern humans. It is the cultural and ecological contexts in which the decision-making processes operate that are variable from society to society and over time. Thus, using decision-making processes of ethnographic hunter-gatherers as a basis enables an examination of how Paleoindian people may have interacted with their cultural context and ecological surroundings when making decisions relating to subsistence and settlement activities.

The decision-making processes emphasized in this model include those revolving around the interaction of Paleoindians with the environment and landscape in the process of procuring their subsistence; these include the planning, scheduling, and organization involved in moving across the landscape in order to obtain resources and raw materials. Greiser (1985:9) assumed that human decision-making processes are patterned and predictable in terms of certain environmental factors that impose constraints on the behaviour of living components of ecosystems. However, it must be remembered that all decisions are made by people interacting not only with resources in an ecological context, but also with other people in a social and historical context (Mithen 1990:134). Thus it is not only environmental constraints that will affect decision-making, but also a people's cultural norms, traditional beliefs, ideologies, and



Paleoindian Decision-Making Continuum

Figure 4. Northern Plains Paleoindian Male/Female Domains and Decision-Making Realms.

These boundaries and divisions illustrated here would have necessarily been flexible, dependent upon context, and would have fluctuated with an individual's life cycle dynamics.

values and expectations that will frequently enter into the consideration of decisions (Figure 1). Making choices about acquiring resources, and the settlement and mobility of the group not only are concerned with obtaining the necessities of life, such as food, water, and shelter, but also are permeated and interconnected with concerns such as exchange and trade, maintaining and creating social relations and mating networks, fulfilling obligations, and upholding spiritual traditions.

The decision-making processes relating to resource use and choice of settlement location that are outlined below are assumed to be the result of deliberate planning and consideration of preferences, needs, availability, and knowledge on the part of Paleoindian individuals and groups (see Jochim 1976:10), rather than a reflection, as implied by the term "forager," of opportunistic and unplanned processes. As Mithen (1990:22) noted, making a decision essentially involves solving a problem, with the feedback from the choice constituting learning. In order to make a subsistence/settlement decision, one must first determine a goal and decide who should make the decision. The decision-maker(s) must then consider available alternatives, determine what needs to be known to make the decision, and, most importantly, determine what sources of information are available, and how to acquire this information (Mithen 1990:30-31). Once the appropriate information has been acquired from the various sources, it must be processed (i.e., compared and evaluated with reference to its relevance to making the current decision) and integrated (see Mithen 1990:41-50, 79-83). Then the decision can be made (Figure 5). Likely, for hunter-gatherers, the procedure of processing and integration would necessarily have been an almost automatic response (Raymond Le Blanc, personal communication 1994).

Once the necessary information has been integrated and processed, and a decision has been made, the decision-maker, as well as other individuals who are knowledgeable of the situation, will be able to observe the outcome of that decision and learn from the consequences of the choices that were made. However, it must be recognized that not all decisions that are made are appropriate or necessarily good decisions producing the desired results. Of course, individuals do not only learn from good choices and decisions, but can also learn by observing the results and consequences of bad decisions. Bad choices or unexpected results often are due to the fact that, as Mithen (1990:13) stated, there are limits to human knowledge, and people are occasionally prone to error and confusion in their decision-making. While it appears that hunter-gatherers repeat actions that have in the past helped them attain their goals, often a high degree of experimentation in information acquisition and processing is necessary, since conditions and problems are always changing (Mithen 1990:88). The

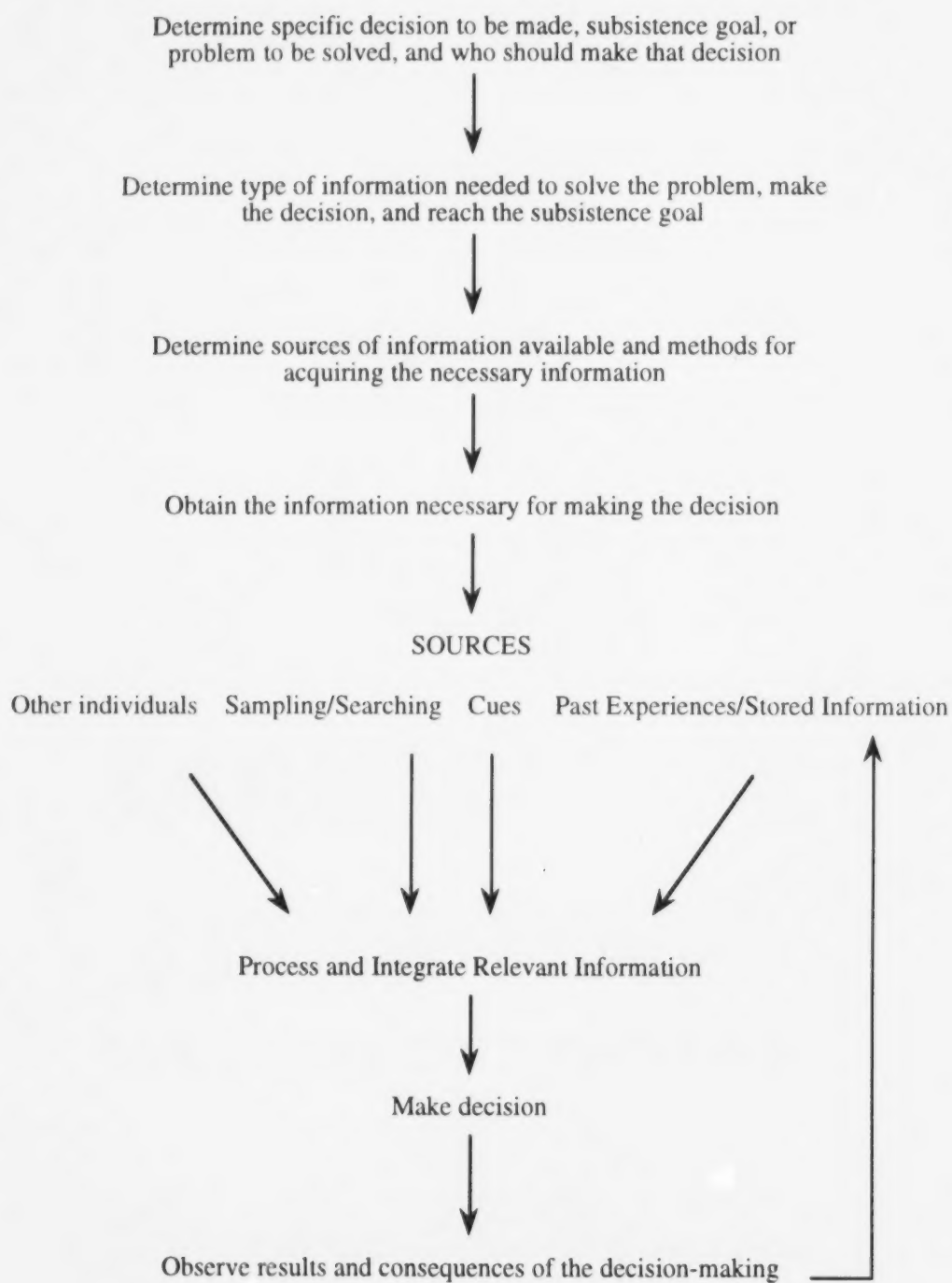


Figure 5. The Process of Subsistence/Settlement Decision-Making (Based on Mithen 1990).

exact consequences of particular choices cannot always be known for certain; at best they can only be estimated from previous experiences and newly acquired information, which constitute a state of partial uncertainty, as referred to by Jochim (1976:5). Moreover, it must be remembered that every individual would not make the same choices or make his or her decisions in the same manner as others. Every individual has different abilities and skills, different knowledge, different access to knowledge and assistance, and different luck as well. Because of the realities of imperfect knowledge, luck, and differing abilities between individuals, cooperation between individuals frequently can play a central role in solving problems (Mithen 1990:13). As Mithen (1990:262) suggested, individuals creatively use the knowledge available to them and engage in cooperation to compensate for imperfect knowledge and bad choices. This practice may have been especially important for Northern Plains Paleoindian populations dealing with the changing late Pleistocene environment.

While some of the decision-making by Paleoindians would have related to immediate problems and subsistence needs, one of the distinguishing characteristics of human decision-making, as Mithen (1990:36) discussed, is that it very often relates to a much longer time frame and not just the immediate future. While continuously dealing with present needs and problems, and thus deliberately gathering specific information for immediate decisions, humans also tend to gather information in relation to events that may happen in the future; they do so to help solve problems and make decisions relating to anticipated needs and future situations. Moreover, in many situations, the decision-makers would need to be constantly integrating new information into the current picture. As Mithen (1990:27) claimed, good decisions are made when the decision-maker is able to integrate new and current information from the environment with stored memory and past experiences. The remainder of the chapter will address the various ways that may have been employed by Paleoindians to acquire the information that was needed to make their decisions; more specifically, attention will be paid to the sources of information available for making a subsistence/settlement decision, including sampling and searching, cues, other individuals, as well as past experiences and stored information (Mithen 1990:32-41).

Subsistence/Settlement Decision-Making and Gender/Sex Roles

Unlike most traditional archaeological research, the ensuing discussion of subsistence and settlement decision-making will not focus on subsistence activities as single events or isolated and separate activities performed by a single person or single

gender/sex. Instead, subsistence activities will be viewed as interrelated multi-task activities organized in various ways (see Spector 1993:9). While it is likely that Paleoindian groups defined typical male and female tasks, many of these tasks were probably complementary, cooperative, overlapping, and, perhaps more importantly, composed of multiple interconnected events, behaviours, and stages. Activities such as resource and raw material procurement, tool production, and food processing would have been, as in many ethnographic and present-day hunter-gatherers, segmented into smaller activities and tasks that could have been shared by Paleoindian women, men, and older children in an interdependent cooperative nature. Consequently, within these interrelated realms of tool production, plant and animal resource acquisition, and settlement, there would also have been multiple interconnected levels of decision-making.

For example, while it is entirely possible that Paleoindian women maintained and curated their own tools especially for specific tasks, there is little doubt that the entire realm of producing stone implements would have entailed numerous stages, smaller related tasks, and associated decisions in which Paleoindian women and older children could have been involved. For instance, raw material first would need to be located and then extracted and sampled to determine the quality and suitability of the material. This process would be followed by primary reduction and knapping, the production of blanks, and transport of those blanks, cores, and additional raw material. Secondary knapping would be conducted as needed to produce the desired tool and, of course, numerous episodes of resharpening, reuse, and remodification would naturally follow. At any point during this process, Paleoindian women and older children, as well as men, likely participated in these activities and also contributed through their acquisition of information needed to make decisions relating to these activities. Clearly, archaeologists cannot assume that the total realm of lithic tool production was the exclusive domain of Paleoindian males.

Given the initial uncertainty associated with increasing seasonality, more specifically the increasing uncertainty in the distribution of essential resources during the late Pleistocene, acquiring information about the location, characteristics, and quality of a wide range of plant and animal resources would have been extremely important and an integral part of Paleoindian subsistence/settlement decision-making. Necessary to the success of activities focusing on the acquisition of plants would have been a considerable geographic, biological, and seasonal knowledge of the environment (Rohrlich-Leavitt et al. 1975:114; Slocum 1975:47). This need is evident in McClintock's (1992:364) reference to several Blackfoot women who had assisted him

with his botanical collection, and helped him identify the numerous varieties, names, uses, and preparation methods of different plant species. Likewise, information derived from studying the !Kung indicates that successful gathering over the years requires the ability to discriminate among hundreds of edible and inedible species of plants at various stages in their life cycles (Draper 1975:83).

For Paleoindian populations, then, the collecting of plant resources would have required, first of all, the ability to identify the numerous varieties of plants, an enormous knowledge of the plants themselves and of the abundance and preferred location of each species in particular areas and regions within the landscape, knowledge concerning the life cycles of the various species in relation to seasonality and when was the best time to gather and use them, and last, but not least, the tools for extracting or collecting the plants, some type of container or holder for carrying them, and the knowledge of the various methods and procedures for processing and utilizing them. In addition to their importance as food items, plant resources would have been important in exchange and establishing reciprocal relationships among Paleoindians, and for obtaining valued products for medicinal and ceremonial use, for collecting raw materials needed in the construction of tools and structures, and for obtaining information relating to the location of other resources. Acquiring plant resources for Paleoindian populations would not simply have entailed gathering something to eat (see similar claim made by Reed 1991:292 for North American subarctic groups). Moreover, it is likely that Paleoindian women, older children, and even men would have been involved not only in the actual collection of the plants, but also in acquiring the considerable information necessary to make decisions concerning plant exploitation.

Similarly, with the small population size of Northern Plains Paleoindians, the openness of the groups, and the need for flexible roles to deal with the rapidly changing late Pleistocene environment, Paleoindian women and older children, along with Paleoindian men, probably played important parts and roles in the whole "hunting complex" or process (see Chapter V). It must also be acknowledged that, in addition to being hunted with weapons, animals could have been and were likely acquired through the use of snares and traps. Paleoindian women and older children, as well as men, were probably actively involved in these activities. Although the tools and associated technologies needed to perform these activities would have been different, both hunting and snaring/trapping would have required the same degree of in-depth knowledge of animal behaviour, trails, and movement, as well as detailed knowledge of the local terrain for successful decision-making.

Paleoindian women and older children likely made vital contributions to the acquisition of information that was necessary for making decisions relating to the procurement of animal resources. As the location and condition of desired animal species were continually changing due to seasonal and weather variations as well as the late Pleistocene shift from a "Plaids" to "Stripes" environment, Paleoindian people would have needed to undertake sampling and searching strategies (see Mithen 1990:55-59) to obtain necessary information concerning the location and movement of game. In addition, they would have been continuously watching for cues, such as the characteristics of the landscape and terrain, the presence and condition of specific plant resources, and weather and climatic conditions including temperature and rainfall (see Mithen 1990:59-66) that would provide essential information about animal resources that could not be directly measured or determined.

These strategies of sampling and observing cues would not necessarily have been separate activities, nor have involved only those people actually wishing to acquire the animal resources. Instead, they frequently could have been embedded in other tasks (Mithen 1990:58). Groups or individuals who are performing subsistence activities involving the collection of plants and various other resources and raw materials do not ignore animal resources. Often they will procure animals, in addition to obtaining information relating to the location of animal tracks and excretions, the density of game, the direction of game movements, and the location of water and feeding areas, as occurs among the !Kung (Draper 1975:82; see Kornfeld 1988:216 for further references). This information can later be passed on to other members of the group to assist them in making decisions about where and when to hunt game, and ultimately to play a vital role in increasing the chances of success for the hunters.

Similarly, individuals on hunting expeditions do not ignore plant resources. Instead, they frequently consume berries, nuts, and fruits. Moreover, they may even return with floral products and are in the position to acquire information relating to current locations and conditions of desired plant species; such information can ultimately influence future decisions concerning subsistence activities and camp movements (Kornfeld 1988:215-216). When Alaskan Koyukon hunters or trappers return to their village, they often recount in detail what they have seen and experienced, creating a steady dialogue and a constant sharing of knowledge of the environment (Nelson 1983:46). For Paleoindians, given the nature of the late Pleistocene environment, the constant exchanging and sharing of information relating to the location and quality of plant and animal resources would have been essential to making good subsistence and settlement decisions (see discussion in Kornfeld 1988:216).

Moreover, because of the apparently open and mobile way of life for Northern Plains Paleoindian groups (i.e., especially high individual mobility), men, women, and older children all were probably involved to some degree in acquiring information needed to make decisions about plant and animal resource exploitation, information ranging from directly sampling a resource patch and reading cues indicating the quality and location of resources, to communicating with other individuals who may have acquired certain knowledge about desired resources.

Despite the growing archaeological and paleoenvironmental evidence that appears to indicate that Paleoindian populations exploited a more diversified resource base, many models reconstructing Paleoindian settlement and mobility strategies still implicitly assume that the hunting of bison or other large game was either the only factor or the most important factor influencing settlement and mobility decisions made by Plains Paleoindian peoples (e.g., Hofman and Ingbar 1988; Kelly and Todd 1988). It seems more reasonable, however, to suggest that numerous considerations had to be factored into the equation when people made decisions to move, locate, and set up residential camp (Figure 6).

First of all, prior to making settlement and mobility decisions, Paleoindian groups would have to consider the availability, location, and condition of a wide variety of resources, including plant resources, animal resources, lithic raw material, water, and fuel. Moreover, the nature of these resources--their mobility, reliability, and patchiness--would have to be considered, and these factors would consequently affect Paleoindian settlement location and mobility decisions. As Jochim (1976:54-55) argued for hunter-gatherers in general, Paleoindians likely chose their immediate camp locations with primary consideration given to shelter, view, and immobile and more reliable basic resources such as water and fuel. Highly mobile resources, on the other hand, especially those less clustered, would be less important in the specific location of a settlement (Jochim 1976:54), as the catchment area surrounding the base camp could be easily widened by establishing satellite extraction camps near more mobile resources (Jochim 1976:63). Highly mobile resources such as caribou, bison, and fish that were clustered, however, could influence and even determine specific locations of settlement, for example, at river crossings where the animals could be intercepted (Raymond Le Blanc, personal communication 1995).

In addition to the nature, mobility, and general reliability of the resources, the situational demand for raw materials to make required tools, shelters, and clothing would have been primary concerns for placement and mobility of Paleoindian settlements. As well, the desire for shelter from adverse weather conditions or other

INDIVIDUAL PALEOINDIAN MEN,
WOMEN, AND CHILDREN
OBTAIN:

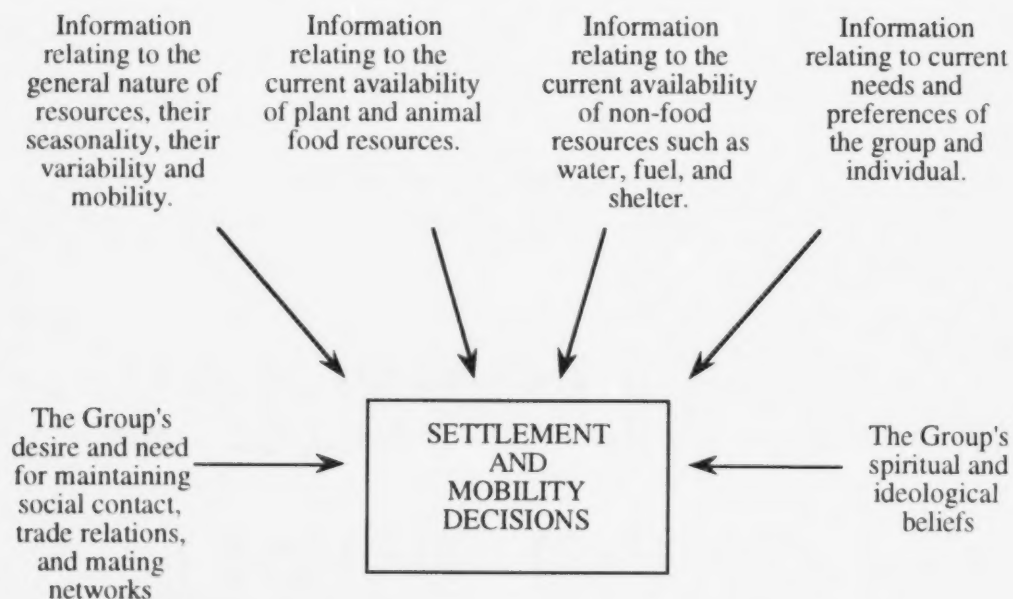


Figure 6. Factors Contributing to Settlement and Mobility Decisions.

groups, and the need for a location suitable for viewing game movements and general environmental conditions may have been important considerations for Paleoindian groups when making decisions relating to the location of their settlements. Last, location and mobility decisions would have also been made in conjunction with spiritual needs or traditions, as well as the need or desire for finding mates, for maintaining contact and exchange relations with other neighbouring groups, and for resolving conflicts.

Thus, as Jochim (1976:47) indicated, the location of settlements is the result of a set of decisions concerning the spatial arrangement of the population in order to meet a number of goals and needs, including food and non-food resource use, protection and shelter, availability of water and fuel, and a view. In view of the common assumption that women tend to exploit more high security, concentrated, predictable, and less mobile or stationary resources (e.g., Jochim 1976:55, 1988), the resources that are considered of primary importance in determining immediate site location, it would appear that women would be the most knowledgeable and in the best position to select actual camp locations, and to make these decisions relating to group settlement and mobility. However, the association of women with the acquisition of nonmobile, high security resources and men with the acquisition of highly mobile, risky, and low security resources mirrors the hunting-gathering/male-female dichotomy. This dichotomy has been demonstrated to be too rigid and inaccurate for hunter-gatherers. Instead, decisions relating to settlement location and mobility were likely made in a more complementary and cooperative fashion.

An essential part of this settlement decision-making would have been the acquisition of information. Paleoindian men, women, and older children, all could have provided vital settlement information relating to the availability and condition of resources, water, shelter, and fuel, and the need for raw materials for tools, shelters, and clothing. Knowledge of the seasonality and life cycle of various plant resources exploited by Northern Plains Paleoindian people would have played an important role in decisions relating to settlement and mobility of the group. McClintock (1992:385-386) made reference to times when Blackfoot camps were specifically situated in certain locations primarily for the purpose of gathering seasonal plant foods such as berries for winter supplies. Similarly, in a study of seasonal use of plant foods, Galvan (1976, cited in Guenther 1991:18) concluded that the seasonal round was designed to correspond to the schedule of ripening plant foods of various types at different elevations and locations throughout much of the year. Although the nature of seasonality of late Pleistocene-early Holocene environments was much different from

the seasonality experienced by more recent Plains populations, Northern Plains Paleoindian groups would still have needed to be in specific areas at specific times when plants were available.

Site location and mobility, therefore, would not be determined solely by either men and their opinions, nor structured entirely by the demands and requirements of hunting. Scheduling settlement in accordance with plant availability would have been an important consideration, especially if the plant resources to be exploited were highly desired, and clustered in certain areas of the landscape and only available during restricted time periods. No doubt some Paleoindian residential camp locations were situated primarily for optimum exploitation of certain plants when they were at the desired point in their life cycle to be collected. Those individuals (whether men, women, or children) who had detailed knowledge of plant locations and cycles would have influenced decisions about the selection of camp location and timing of group movements; in some cases, they may have been entirely responsible for settlement and mobility decision-making. Clearly, if, as seems highly likely, Paleoindian women were as mobile as men in their subsistence activities, women would have had as detailed knowledge about the landscape as men, and could thus have significantly contributed to making decisions about settlement and movements of the group.

Levels and Control of Decision-Making

It must be remembered that the processing and integrating of information, and the final decision-making itself can occur at several different levels, involving only a single individual, a smaller group of people, or perhaps even the entire group. As a result, there are often different spheres of decision-making. Among many ethnographic societies, associated with the typical male and female spheres of activities are corresponding spheres of decision-making. For example, Spector (1983:95) discovered in her study of ethnographic records of nineteenth-century Plains Hidatsa people that males and females had access to information, knowledge, and materials unavailable to the opposite sex; thus, decision-making was sexually segregated. Similarly, Briggs (1974:275) observed for the Eskimo that the separation between male and female spheres applied not only to tasks but also to decision-making. For Paleoindians, who likely defined "typical" activities for men and women, each sex would have had access to detailed information and knowledge concerning their particular realm of responsibilities and tasks; therefore, most logically, women would have been in control of the decision-making in their sphere and men in their sphere.

However, just as there would have been overlap in tasks to meet the demands of the greater variability in the environment, and to cope with the absence of specific Paleoindian adults who might be away on logistical task trips, at times there would have been overlap in these decision-making spheres. Moreover, this overlap would also have occurred in the form of individuals seeking advice from those not directly involved in the actual activities, but who might have had some important or vital knowledge relating to the situation. As well, because of the general openness of the society, individuals would also have been able in some way to influence indirectly certain decisions that were not being made entirely in their domain of activities but that might have somehow indirectly affected them, if they so desired (Figure 4).

Certain activities, probably those that affected many of the members of the Paleoindian group, including the movements of the group, placement of camp and wintering locations, and communal subsistence activities, would have necessitated some form of group decision-making. As opposed to individual decision-making, group decision-making would logically have been more complex since it would involve the consideration of numerous resources and thus more information, as well as including more people and thus more ideas and opinions (Mithen 1990:48). For example, among the G/wi speaking Bushmen, decisions that affected the band as a whole, such as movement of campsites and location of seasonal ranges, were made through discussion in which all adult and near-adult members could participate (Silberbauer 1982:26). While these band decisions were arrived at by consensus, this practice does not necessarily indicate that all group members held the same opinion and supported the same decision; instead, consensus was reached after a series of judgments were made by people who all had access to a common pool of information, although certain individuals may not have possessed this information, or may have decided not to make a judgment themselves (Silberbauer 1982:31).

Among Paleoindians, primary input in group decision-making would have likely been from those most experienced individuals with the greatest knowledge and information about the particular concerns at hand. While all members of the group would have been affected by any movement of the camp, those Paleoindian men and women who were most actively and directly involved in providing subsistence for the group, and who probably would have ranged out from camp on some occasions while performing their daily tasks, would have been more affected by movements of the camp, especially in their future searches of game, plant foods, raw materials, and water. Consequently, in addition to their valuable knowledge relating to the surrounding resources and landscape, these men and women would also have had some vested

interest in contributing to the decisions regarding group movements and settlement, since it would greatly affect their subsistence work.

The question arises as to exactly how much input and influence Paleoindian children actually had with regard to making major subsistence and settlement decisions. In all likelihood, the influence of older children in decision-making did not go beyond that of occasionally providing valuable information about resources. As Cruikshank (1979, 1990:10) observed for Athapaskan children, Paleoindian adults probably taught children the importance of self-reliance and responsibility, encouraging them at a young age to learn about and assist in subsistence activities, and to gather information for those activities. Overall, though, older Paleoindian children likely did not have much actual decision-making power concerning subsistence and settlement activities.

Because of the assumed public nature and openness of Paleoindian social life and experience, it would seem that excluding certain adult individuals from group decision-making processes and from obtaining particular knowledge and skills would have been very difficult if not extremely detrimental to the survival of the group as a whole. Lee (1982:56) noted the lack of privacy for the !Kung, with their daily life going on in full view of the entire camp. For the G/wi speaking Bushmen, Silberbauer (1982:30) noted a similar situation in which very little of any individual's actions escaped the attention of fellow band members, and cases in which disputes involving only a few people within a household often eventually involved the whole G/wi speaking Bushmen band. As Silberbauer (1982:30) remarked, in a community as small and intimate as a band, the parameter of affairs of "public" policy extends into what many larger societies would consider the domain of private or personal decision. It is plausible to assume that a somewhat similar situation of openness and overlapping of household and band life and decision-making spheres existed for small Paleoindian groups. In fact, while the western view, which essentially derived from Victorian beliefs of a domestic/public dichotomy, assumes that the "domestic" or camp sphere was private and the domain of women, a more realistic perspective for hunting-gathering societies characterized by small population size and relatively high individual mobility is one that considers the household and camp life as the "public" and economic domain involving all members of the group. In fact, it would be the specialized subsistence and task outings and trips made by individuals or small groups of people that would be more private and less visible to the entire group.

Processing information and actual decision-making concerning subsistence and settlement activities at the group level would thus have been approached by Paleoindians in a more parallel or complementary manner, rather than a strictly

hierarchical fashion, given that the members of the group would have been performing a wide range of both independent and interrelating tasks and activities at any given point during their day. On occasion, no doubt, a certain activity, task, or need would take precedence over others when Paleoindians were making subsistence and settlement decisions (for example, the need for winter hides, the desire to collect ripened vegetable items, the need for lithic resources); however, even though it would be a priority, other concerns and basic needs would still have to be factored into decisions as well. Moreover, these priorities would have constantly been changing for Paleoindians and would have varied depending upon the current needs of the group (especially if they were under some sort of food stress), the accessibility and availability of other resources, and the desirability and preference of certain resources and the nature and condition of these resources. Group decision-making would therefore out of necessity have been important and highly developed for Paleoindian populations.

Northern Plains Paleoindian Case Studies

One major issue that needs to be addressed before the archaeological record is examined is the issue of the archaeological visibility of women and children. It is logical to conclude that Paleoindian women and children must, in some way, be archaeologically visible at campsites, given that they had to be present at these locations. What about other site types? Brumbach and Jarvenpa (1994) noted that presently among the Chipewyan of northwestern Saskatchewan, women tend to hunt closer to settlement areas. Since the materials produced at these settlement and processing sites are frequently more spatially concentrated, these remains would be more visible archaeologically than kill sites that involve only one or a few animals located at some distance from the base settlement. In certain situations, then, women's participation in the entire hunting process might be more easily detected in the archaeological record (Brumbach and Jarvenpa 1994). However, the fact that Chipewyan women tend to hunt and perform other activities closer to settlement areas may be closely related to the dramatic increase in both childbearing and child-rearing responsibilities of Chipewyan women in more recent years (Brumbach and Jarvenpa 1994). The situation would have been different for Paleoindian populations who were presumably characterized by small population size, flexible residential mobility, and individual mobility that was essentially high on a continual basis. It is highly likely that for Paleoindian populations, women and children were present and, therefore, would be archaeologically visible not only at camp and settlement sites, but also at some smaller

specialized task activity and procurement sites that were situated at some distance from the base camp.

The following section will consider gender/sex roles in more detail. The primary goal is to make Paleoindian women, children, and men and their possible contributions more visible. This goal will be accomplished by examining subsistence and settlement data from several Northern Plains Paleoindian sites, with an emphasis on information acquisition, decision-making, and the multifaceted nature of subsistence tasks. These sites include the Agate Basin site in east-central Wyoming (Frison and Stanford 1982), the Carter/Kerr-McGee site in northeastern Wyoming (Frison 1984), the Lange-Ferguson site in South Dakota (Hannus 1990a, 1990b), the Anzick site in south-central Montana (Lahren and Bonnicksen 1974), and the Indian Creek site in west-central Montana (Davis 1993; Davis and Greiser 1992). The sites chosen here do not represent an exhaustive list of Northern Plains Early Paleoindian sites but were selected because they were from well-reported and detailed published sources and because they represented a wide range of different site types.

Agate Basin Site

The *in situ* Folsom occupation level in Area 2 of the Agate Basin site (Figure 3; Table 1), radiocarbon dated at $10,780 \pm 120$ years B.P. (Frison 1982c:179), rests on the floodplain of an old arroyo, and is characterized by a scattered bone bed containing the remains of several bison, pronghorn antelope, canids, and rabbits (see Frison 1982d:39-70). Extensive cultural modification, in the form of cut marks and patterned breakage indicative of butchering and processing, was evident on bison remains (Zeimens 1982:217-226) and pronghorn bone (Walker 1982b:270-271). Cut marks and breakage resulting from butchering and processing were also identified on wolf, fox, medium-sized canid, and jack rabbit bones (Walker 1982b). Based upon the change in colour and texture of cultural deposits, the distribution of artifacts, and the presence of what have been interpreted as bone anchoring pegs, Frison (1982d:39-43) postulated the presence of one or two living structures. Although Frison (1991a:158-159) emphasized the Agate Basin locality as being a favourite bison procurement location for Paleoindian populations, the discovery of these possible living structures, one of which contains a well-defined hearth, indicates that this Folsom component also represents a camp and activity area rather than strictly a kill and processing area.

Several flake concentrations occurred both inside and outside the postulated structures in the Area 2 Folsom component at the Agate Basin site. Recovered lithic

artifacts included projectile points, preforms, endscrapers, sidescrapers, serrated cutting tools, graters, channel-flake tools, a few bifaces, choppers, a possible anvil stone, a hammerstone, a few abrading/grinding stones (some which were coated in red ochre), several cores, and almost 20,000 flakes (Frison 1982d:45-70). In addition, numerous bone and antler tools were recovered (see Frison and Craig 1982:162-171), including an elk antler tool and bone tool believed to be fluting punch tools (see Frison 1991a:51-55, 58, 59), bone and antler projectile points, bone needles, cut and incised rib sections, and other worked bone items in various stages of manufacture.

This wide variety of tool types recovered from the Folsom component, combined with the fact that many of the tools exhibited multiple use edges for performing different functions and tasks (Frison 1982d:45), suggests that the activities undertaken by Folsom populations at Agate Basin encompassed a wide variety of activities in which men, women, and older children were likely involved. Scrapers are generally assumed to be associated with the domain of hunting; that is, they are generally interpreted as tools for processing animal skins, a post-kill technology, or interpreted as tools for finishing bone tools such as shafts for hunting spears. As Kornfeld (1988:214) argued, however, scrapers could also have been used to modify other material such as wood. Moreover, the post-kill processing of animal skins and the scrapers that were used for this purpose are closely associated with the manufacture of clothing, carrying bags, tent skins, and other similar items, rather than with hunting *per se* (Kornfeld 1988:215). Similarly, knives and bifaces are frequently interpreted as butchering tools, and thus closely related to post-kill technology as well. The butchering of animal resources, however, is related to the distribution and sharing of the meat and other usable products, the processing of those items, and the exchange of the final products, which is closely interconnected with the dynamics of individual and group relations and social obligations. These are all activities in which both women and men would have been intimately involved.

The archaeological evidence clearly indicates that the manufacture and fluting of projectile points, and the manufacture of other types of stone and bone tools were major activities occurring at the Agate Basin site during the time of the Folsom occupation. As Kornfeld (1988) argued, the production processes of lithic tools such as projectile points, scrapers, and knives often result in an abundance of usable flakes and tools. These flakes and tools could have been used by men, women and older children, not only for hunting-related activities such as butchering game, but also for non-hunting activities such as plant gathering, manufacturing items such as clothing, carrying equipment, and shelters, and producing other tools and cultural items out of organic

materials such as wood, bone, and leather. For example, at the Lindenmeier site, a Folsom campsite in Colorado, the recovery of 1007 unmodified flakes and 639 flakes showing evidence of utilization (Wilmsen and Roberts 1978:Table 27) indicates that these Paleoindians used a great number of flakes in the course of their activities.

As noted previously (see discussion in Chapter V), women in hunting-gathering societies are intimately involved in and play essential roles in the entire hunting process. At the Agate Basin site, women and older children necessarily would have participated in the activities surrounding the procurement and processing of both bison and pronghorn. Moreover, women and older children, on their own or with others, probably hunted or snared and, of course, butchered and processed smaller animals such as the canids and jack rabbit that are represented in the faunal assemblage recovered from the Folsom level.

Even though the Agate Basin site is interpreted as a bison procurement site, the occupants of the site certainly would have performed, along with hunting-related activities, other subsistence activities such as the gathering and processing of plants and other resources. While it is generally assumed that plant foods were obtained primarily by women in hunting-gathering societies, the entire realm of plant acquisition probably involved not only women, but men and older children as well. At the Agate Basin site, although there is no direct evidence for plant gathering but only the possibility that the wide variety of stone and bone tools were utilized for some aspects of plant gathering and processing, Paleoindian men, women, and older children all conceivably could have been involved in gathering information about the location, the condition, and quality of a wide variety of food, structural, and medicinal plant resources. They therefore could have assisted in the decision-making about plant exploitation, in addition to producing implements needed for plant gathering and processing, and actually collecting, processing and distributing the products.

Moreover, an examination of the fauna recovered from Folsom levels at the Agate Basin site (see Walker 1982a) as well as soils analysis indicate that the arroyo bottom was much more mesic during late glacial times, supporting both a more diverse fauna than today, and an extensive grass and forb community as opposed to the more xeric-adapted plants present in the area today and in the recent past. What would a more diverse and mesic environment mean for Paleoindian subsistence and settlement activities? If late prehistoric and historic groups on the Plains exploited such a wide variety of resources (see Chapter VI) in a region that was characterized by greater aridity and decreased faunal and floral diversity in comparison to late Pleistocene-early Holocene times, then it seems logical to conclude that with a greater diversity of

resources available in the environment, the exploitation of a wide variety of faunal and floral resources would have played a significant role in Paleoindian subsistence. Martin et al. (1985:27) even suggested that with the lack of a severely cold season and generally wetter conditions in most of North America south of the ice sheet during the late Pleistocene, there would have been a greater abundance of wild plants present, which, in turn, would have favoured the gathering of plant foods by late Pleistocene human occupants of the region. It must be noted, though, that the fact that there are more plants present in the environment does not automatically mean that human populations will increase their exploitation of plants. It is apparent that during the Pleistocene there was a greater variety and diversity of plant species, whereas with the transition to the Holocene "Stripes" (as discussed in Chapter VI), species diversity was reduced as species became grouped into biomes. The degree to which plants were utilized by Paleoindian peoples would have greatly depended upon the variety and actual types of plant species present in the environment and if those types were useful, exploitable, and preferred. Nevertheless, it is possible that with a greater diversity of species available during the Pleistocene prior to the shift to the "Stripes" environment, there may have been a somewhat increased potential for gathering usable plant resources.

Frison (1991a:158-159) suggested that the occupation of the Agate Basin site by Paleoindian groups was related to the presence of an arroyo feature that was ideal for trapping and procuring bison. Other factors, however, must have also made it a desirable settlement. Although perhaps not the dominant reasons, factors such as the availability of other animal species in the area, as indicated by the presence of butchered remains of pronghorn antelope, and the availability of other essential resources such as water and fuel, must have partially contributed to the determination of this particular site area as a favourable settlement location. Even though dentition studies suggest that the Folsom bison faunal remains represent a late winter/early spring kill (Frison 1982e:258), and thus the availability of floral resources may have been reduced, some resources such as seeds, bark, and firewood still would have been available (see Kornfeld 1988:215). Moreover, the greater variety of floral resources that evidently characterized many late Pleistocene environments may have resulted in a greater variation in timing, abundance, and location of desired plant species. It is possible that the consideration of both the availability of animal and plant resources played integral roles in the settlement decisions made by the Paleoindian occupants of the Agate Basin site. Moreover, it would have been Paleoindian women and older children, as well as men, who directly contributed to this settlement decision-making.

Carter/Kerr-McGee Site

The Carter/Kerr-McGee site (Figure 3; Table 1) is a small, stratified multi-component Paleoindian site located in the eastern Powder River Basin of Wyoming (see Frison 1984). Although there is a lack of evidence for bone beds in the lower cultural levels, Frison (1984:296-298) argued that, for at least 2,000 years, Paleoindian populations favoured this spot for trapping bison. The Folsom level revealed broken bison bone, along with a few bone elements possibly of mule deer. An *in situ* fire hearth was present, with several flakes, artifacts, and calcined bones located in and around its edges. A radiocarbon date of $10,400 \pm 600$ years B.P. (Frison 1984:300) was obtained from a charcoal sample from the hearth. Artifacts within the Folsom level included sidescrapers, endscrapers, graters, and several retouched flakes, along with numerous flakes, most of which were small pressure flakes. In addition, there were several channel flakes, indicating that the fluting of projectile points was a site activity during the Folsom occupation (Frison 1984:303).

At the Carter/Kerr-McGee site, the activities of Paleoindian women and older children could be reflected in the archaeological record, given that they were likely involved with and assisted in the entire process of hunting and trapping the bison. First of all, women and older children, in addition to men, could have provided necessary information, which they had gathered during earlier subsistence outings, about the location and condition of the bison, and thus assisted with the planning and decision-making concerning the procurement event. Moreover, they could have been intimately involved in any rituals or spiritual practices that may have been considered necessary for hunting success, and been directly involved in the actual procurement and killing of the bison. In addition, some of the tools recovered from the site, such as the retouched quartzite flakes and two possible bone tools (Frison 1984:303) that are suggestive of butchering activity, are just as likely to represent female participation in butchering as male involvement. Furthermore, the occurrence of sidescrapers and endscrapers and graters are indicative of the processing of the bison products or other raw materials such as bone or wood; it is highly probable that women were involved in these processing activities, as well as in the final distribution of the products. Last, evidence indicates that tool production and resharpening, and the fluting of projectile points were activities performed at the site. Since Paleoindian women would have made and used stone tools to some extent, some of these remains could possibly be the result of their retouching or producing tools for butchering and processing tasks. In addition, as

women would have been able to anticipate current and future tool needs, and may have had knowledge of the locations and quarries of various raw materials, they could have been involved in decision-making relating to tool production, and therefore influenced the scheduling of the group's movement in relation to the need for resharpening, retooling, and obtaining additional raw material.

Lange-Ferguson Site

The Lange-Ferguson site (Figure 3; Table 1), located on the edge of a late Pleistocene pond/marsh in the White River Badlands of western South Dakota, has been interpreted as a mammoth kill/butchering locality associated with the Clovis cultural complex (see Frison 1991a; Hannus 1990a, 1990b). Radiocarbon dates obtained for site deposits include $10,730 \pm 530$ years B.P., $10,670 \pm 300$ years B.P. (Hannus 1990b), and $11,140 \pm 140$ years B.P. (Frison 1991a:Table 2.1). Two activity areas were discovered, the first containing associated remains of an adult and a juvenile mammoth that had been systematically butchered using culturally-modified mammoth bone elements as tools. The second activity area, stratigraphically related to the first area, revealed three basally fluted Clovis points, and possibly represents a secondary butchering and tool manufacture area. Frison (1991a:39) argued that this site may represent more opportunistic (as opposed to planned) hunting of mammoth by Clovis populations. Some archaeologists, such as Frison, may interpret the Lange-Ferguson site, like the Carter/Kerr-McGee site, as being primarily the result of Paleoindian male hunters; however, by addressing several unsupported assumptions, archaeologists can identify the possible contributions of Paleoindian women and children in creating the archaeological record at the Lange-Ferguson site.

With reference to the Lange-Ferguson site, Hannus (1990a:87) is uncertain as to whether the mammoth were actively hunted and killed by Clovis groups. He has therefore suggested that it is possible that the mammoth may have been scavenged by Clovis peoples. If this is the case and the adult and juvenile mammoth remains were scavenged by Paleoindian populations, then women and children could have made significant contributions to this activity. First, women and older children may have been the ones who located the carcasses during their daily activities possibly by watching for scavenging birds or through smell, and noted the condition of the carcasses to determine whether or not usable products could be obtained. They may have thus assisted in making decisions as to whether the carcass would be exploited or not, and whether the entire group or part of the group would undertake the task or not.

In addition, women and older children could have assisted in the butchering of the carcasses, and women were certainly involved to some degree in the decision-making relating to the distribution of the raw materials and the processing and distribution of the final products. Even if the remains at the Lange-Ferguson site represent the final results of active Paleoindian hunting as opposed to scavenging, women and older children could still have been involved in locating and tracking the animals, in the actual kill event, and most definitely in the subsequent butchering, processing, and distribution activities.

Anzick Site

The Anzick site (Figure 3; Table 1), located in a collapsed rock shelter on a drainage of a Yellowstone River tributary in the southwestern region of Montana, has been interpreted as a Clovis cache/burial location (see Frison 1991a:39-41; Lahren and Bonnicksen 1974). Although the site itself had been somewhat disturbed before systematic study could be undertaken, fragments of the skulls of two sub-adult humans and over 100 stone and bone artifacts, including fluted projectile points, ovoid and lanceolate bifaces in several stages of reduction, a blade, an endscraper, and utilized flakes were collected. Cylindrical-shaped bone items were also recovered, and Lahren and Bonnicksen (1974) suggested that these bone foreshafts were used for hafting fluted stone points to lance shafts. Radiocarbon dates of $10,820 \pm 100$ years B.P., $10,710 \pm 100$ years B.P., and $10,940 \pm 90$ years B.P. have been obtained for the site (Frison 1991a:Table 2.1). In addition, AMS dating of human cranial fragments from the site produced an average date of $10,680 \pm 50$ years B.P. for an ochre-stained calvarium, and an average date of $8,600 \pm 90$ years B.P. on a bleached specimen (Stafford 1990:121). Stafford (1990:121) concluded that the younger skeleton apparently originated from an overlying Archaic site, and had become associated secondarily with the Clovis artifacts. It therefore appears that only one of the human skeletons is of Clovis age.

Based on the assumption that males were solely responsible for tool production, especially "so-called" hunting tools and lithic biface production, a suggestion could be offered that the Anzick burial/cache was primarily the result of male activity. However, women and children were likely involved as well in various activities surrounding the burial and cache activities. If Frison's (1991a:41) interpretation is accepted, that at Anzick the items were not intended as a cache for future use but intimately associated with the burial of the individual(s), then women and children at the very least would have had some knowledge of the death of the individual, especially as it was a

juvenile/sub-adult individual. The evidence, such as the use of red ochre and the fact that numerous high-investment stone and bone tools and good quality raw materials were included in the deposit, points to considerable planning and thought with respect to the burial. It is unlikely, therefore, that the death had occurred during a specialized task outing and that only a few individuals were responsible for the burial, completed without the knowledge and participation of the larger group. Instead, it appears that the larger group or a major portion of that group was involved. Therefore, the activities associated with the burial would have had some effect on the everyday subsistence and settlement activities and decisions of the entire group.

In addition, it is highly likely that some kind of ritual activity was associated with the burial event at Anzick, especially as suggested by the presence of red ochre and the nature of the items recovered. Frison (1991a:41) interpreted Anzick and other Clovis "burial" caches on the Northwestern Plains as representing an institutionalized part of Clovis life in which high quality raw materials and tools were deliberately buried with no intention of future recovery. Similarly, Storck (1991:157-158) postulated that the large fluted points recovered from caches such as Anzick, the Richey Roberts Clovis Cache in Washington state (Mehringer 1988, 1989), and a few eastern Paleoindian sites, as well as the miniature pseudo-fluted points that have been recovered from the Clovis component at Blackwater Draw Locality No. 1 in New Mexico, the Lindenmeier Folsom site in Colorado, and several Paleoindian sites in the eastern part of North America provided strong evidence that the fluted point had ideational significance that was expressed by widely separated groups of people. Even though evidence for ritual or symbolic activity may be relatively rare in early Paleoindian sites, it is likely that ritual beliefs and activities, particularly those surrounding death, were shared by and involved in some way all members of the group, especially given the small size of Paleoindian bands.

Conceivably, then, at the Anzick site, women may have assisted with the planning and decision-making associated with the burial, including the decisions as to the burial location and the materials to be included; as well, they may have been involved directly with producing or acquiring the burial items and raw materials, and directly with the various physical and ritual activities associated with the actual burial.

Indian Creek Site

Frison (1991a:67) argued that archaeological evidence seemed to indicate that by 10,000 years ago there were two separate and distinct Paleoindian groups on the

Northwestern Plains and adjacent areas, one located on the open plains and emphasizing a bison hunting way of life, and the other focusing on a hunting and gathering economy in the foothill and mountain slope regions. According to Frison (1991a:67), the separation of these groups was probably well in progress by the end of Folsom times or soon after. As a comparison to the Paleoindian sites that have been examined above, most of which are situated in what would be considered the open plains region, the subsistence and settlement data from a Paleoindian site located in the foothill-mountain region will be considered in terms of gender/sex roles and decision-making.

The Indian Creek site (Figure 3; Table 1) is a multi-component stratified campsite located in the northern Montana Rockies, situated within the alluvial valley of Indian Creek on the southeastern flank of the Elkhorn Mountains (see Davis and Greiser 1992). Two localities, identified as the Downstream locality and the Upstream locality, have been excavated, with the Downstream locality producing 28 stratified prehistoric occupational events, including numerous deeply buried Paleoindian occupations. While possible Folsom occupations have been identified at both localities, only the Folsom component from the Downstream locality will be considered here in any detail.

Although no unmistakable Folsom points were discovered, the earliest sampled cultural layer (Occupation 1) at the Downstream locality is interpreted as a Folsom occupation, based on the discovery of channel flakes of the Folsom type. Bulk charcoal collected from a buried surface that was in contact with lithic artifacts and utilized bone provided an indirect radiocarbon age of $10,980 \pm 110$ years B.P. for the Downstream locality Folsom component (Davis and Greiser 1992:239). Since this age is based on forest-fire carbon that has been washed downstream, it is considered a maximum age for Occupation 1, and the actual age of the occupation would be younger (Davis and Greiser 1992:239).

The Downstream Folsom component produced 37 lithic tools, seven channel flakes, and 2,504 flakes, flake fragments, and shatter (see Davis and Greiser 1992:239-265). The tools included 15 endscrapers, 13 sidescrapers, three flake knives, two graters, and one bifacial core. In addition, two basal point fragments, one of which resembled a Folsom fluted point, were recovered, as well as a complete point identified as a reworked Clovis point. The co-occurrence of a Clovis point with Folsom channel flakes and a fragmentary Folsom point in Occupation 1 has complicated the assignment of cultural affiliation for Davis and Greiser (1992:276-277); however, since no flakes of the same lithology as the Clovis point were recovered from the assemblage, they suggested that the Clovis point may have been curated and used by site occupants who

were transitional between Clovis and Folsom, or were Folsom in affiliation (Davis and Greiser 1992:277).

Microscopic examination of wear patterns, studies of edge angle and edge shape, and high-power examination of polishes of the endscrapers from Occupation 1 indicated the occurrence of hide scraping and bone and antler working activities (Davis et al. 1985; Davis and Greiser 1992:250). Debitage was dominated by small flakes and fragments that were by-products of biface and uniface manufacture and tool maintenance (Davis and Greiser 1992:262). Faunal remains from Occupation 1 consisted of the utilized remains of bison, bighorn sheep, marmot, cottontail, and rodents. The diversity of utilized food resources suggests a spring or late spring/early summer occupation (Davis and Greiser 1992:265-266). Stone tool analysis indicated that tasks apparently undertaken during this occupation included lithic selection, procurement, transport and curation, lithic tool production and maintenance, food procurement, processing, and preparation, hide working, and bone, antler, and/or wood working. To Davis and Greiser (1992:266), these tasks primarily reflect female activities that occurred following such male-dominated off-site activities as lithic and game procurement. Moreover, according to Davis (1993:271), the waste flakes recovered from the Indian Creek site are considered male tool production and maintenance residues, while the recovered unifaces, which are dominated by sidescraper and endscraper hide-working implements and flake knives, and which make up more than 85 percent of the lithic artifacts, most likely reflect women's tasks. Davis and Greiser (1992:266) therefore interpreted the Folsom component as representing a short-term base camp that was occupied along a stream in a deciduous forest setting where these various "domestic" activities occurred during late spring or early summer.

Obviously, the archaeological remains at the Indian Creek site represent activities that could have been performed by Paleoindian women and older children; however, Davis and Greiser's (1992; Davis 1993) associations of Paleoindian men with tool production and hunting and Paleoindian women with camp activities such as hide working clearly reflect the traditional domestic/public dichotomy. As previously argued, Paleoindian women conceivably could have been involved with various aspects of the entire tool production process and cycle, including locating, procuring, and transporting the raw material, actually manufacturing the tools, or assisting in making decisions concerning the need for tools for specific tasks as well as the best design for those tools, and resharpening and maintaining tools. Therefore, the waste flakes recovered from the site and interpreted by Davis (1993) as representing male tool production and maintenance residues could be derived from the activities of women.

Conversely, the assumption that sidescrapers and endscrapers, with wear indicative of hide working, reflect women's tasks fails to realize that men and older children may have been involved in aspects of hide working as well. In many cases, men were probably involved in the acquisition of animal resources, and may have had some input in decisions relating to the distribution of the raw materials, which would include the skins and hides, and the eventual function, use, and distribution of those products after being processed. Moreover, both men and older children could have possibly been directly involved in processing the hides or in helping others who were doing the work. Men may have assisted in the manufacture of the various lithic and organic implements required for hide working by providing the raw material for the tools, by making the final item, or by being involved in some stage of the manufacture of the implements.

The archaeological record recovered from the Indian Creek site clearly suggests that a multitude of tasks were undertaken, activities that were not necessarily the result of primarily or solely Paleoindian women's work, but that were more likely performed by men, women, and children in a complementary and interdependent manner. The term "domestic" as used by Davis and Greiser (1992:266) and other archaeologists to describe camp activities is closely connected to western connotations of the household that create images of women being confined to a home and performing repetitive tasks and manual labour. This conception is inappropriate for prehistoric hunting-gathering populations. Paleoindian camp life likely was not entirely the domain of women, but involved the dynamic interaction of men, women, and children, young and old individuals alike. These individuals were not only working towards providing food, shelter, and other essential elements of life for themselves and others, but also negotiating with each other, learning from each other, telling stories, playing and relaxing, reaffirming ideological beliefs through rituals, and reaffirming and establishing important relationships and ties.

THE ISSUE OF GENDER EQUALITY AND STATUS FOR PALEOINDIAN POPULATIONS

In a brief preliminary reconstruction of Northwestern High Plains Paleoindian gender systems, Kornfeld and Francis (1991:446-447) implied that early Paleoindian groups, which they see as being characterized by high residential and foraging mobility, lack of storage, and the use of highly curated technology, likely exhibited an egalitarian social structure, with equal access to resources and power for all adult members, and undifferentiated and fluid task group organization and gender roles. While fluid and

flexible gender/sex roles would have been a great advantage for Paleoindian populations, as noted above, the whole issue of egalitarianism and implicit assumptions of associated gender equality and individual autonomy for Paleoindian peoples is more questionable.

For many (e.g., Ehrenberg 1989; Leacock 1992), identifying a society as "egalitarian" implies the complete absence of any hierarchy, and instead the existence of a type of "golden age" in which equal value, status, prestige, and autonomy is given to all within that society. However, there is the issue of whether or not equality between all members of a society and a golden age state of egalitarianism actually can exist, either presently, or if it did so in the prehistoric past. Lamphere (1977:613, cited in Weist 1980:257) proposed that a situation of sexual equality would be one in which all men and women, regardless of social groups or sexual identity, would be able to make decisions over the same range of activities and people, that is, exercise the same kinds of control. This view is unrealistic. For many reasons (such as talent, capabilities, and personal situations), individuals, whether male or female, frequently have different responsibilities and spheres of activities, and therefore, slightly different knowledge bases and decision-making realms. Associated with these different spheres of activities are different arenas for obtaining prestige and status, as Solway (1992:50) identified for Bakgalagadi men and women of Botswana. Just because individuals are often doing different things, making different decisions, and obtaining prestige in different ways, does not immediately signify gender inequality. In other words, individuals do not need to be doing the exact same things to be considered of equal value.

Sacks (1976) provided ethnographic examples that illustrate that numerous non-state societies interpret the presence of separate male and female spheres of activity or forms of decision-making as separate but equal; that is, each sex may exercise authority through positions appropriate to women or to men. Furthermore, she claimed that, in general, for band societies with a communal mode of production (e.g., the Mbuti), although men and women did different things, the fact that their work was organized in same way and that they stood in same relationship to the band's means of production sustained a genderless standard of economic, political, and personal autonomy and equality (Sacks 1979:113, 133). Differential prestige does not necessarily follow from the existence of different spheres of decision-making. For example, Briggs (1974:288) was consistently told that Eskimo men were not considered more intelligent or inherently superior, but rather that men had better judgment concerning the things they had been taught and women had better judgment concerning the things they had been

taught. Even in cases where spheres of activities overlap, it is still rather problematic to be comparing men, women, and children, and their status and activities. Thus it is better to refrain from evaluating the typical roles and statuses of one sex in terms of those of the other sex.

In addition, the concept of egalitarianism is implicitly tied to ideas of social evolution and images of a linear sequence progressing from egalitarian bands to more hierarchical chiefdoms and states. But there is greater diversity in human organization than allowed by these traditional and very simple classifications (Hays 1993:89). By identifying a society using these concepts and classifications, including categorizing it as "egalitarian," one assumes that immediately everything there is to know about it is known. In fact, any internal variability and flexibility in that society are clearly overlooked, possible anomalies and differences are easily obscured, and, in the process, a diverse and dynamic entity such as a society is reduced to a simplistic and confining label (see related discussion in Yoffee 1993). The category "egalitarian" does not by any stretch of the imagination mean equality, and is greatly misunderstood and misused. While many anthropologists and archaeologists view egalitarian societies as real entities, it is actually the researcher who has created and defined the term "egalitarian" and used it artificially to classify societies.

In some non-state societies, in which women contribute significantly to the subsistence of the group, have a high degree of autonomy, and have flexible but complementary and interdependent roles with men, they are accorded high value and respect by all members of their group, the classic example, of course, being the !Kung. However, just because women contribute as much or even more to subsistence, have a high degree of autonomy, and have complementary roles does not necessarily guarantee that women will receive high regard in that society from all members of society. As Fennell (1992:242-243) argued, simply because women have a high degree of autonomy in a particular culture does not necessarily ensure the absence of a sex hierarchy. For example, it is possible for multiple ideologies to exist in a single society concerning value, prestige, and status of men and women and their respective work. One perspective may stress complementarity and cooperation, and others perhaps may emphasize male dominance and superiority (see discussion in Chapter III). Moreover, there are some non-state societies in which exist both a rigid and strict sexual division of labour and very separate worlds for men and women. There are even some societies in which women are denied access to specific technology and tools, and thus not allowed participation in certain activities that are exclusive to men, and therefore denied access to certain prestige positions. Among the Bimin-Kuskusmin of Papua New

Guinea, adult women hunt some large game on certain occasions, but are denied access to male implements of the hunt, using only crude clubs and small stone axes used by women (Poole 1981:122). Even examples such as these, however, can be viewed from the position that perhaps women did or do not want, or consider these tasks and associated tools to be desirous or appropriate for them; therefore, they do not consider their denial of these tools and activities as signifying some sort of inequality.

As discussed earlier, in view of present-day examples such as the !Kung (see Draper 1975), high residential and individual mobility frequently tends to promote autonomy, respect, and high value for both men and women--in essence, some kind of gender "equality." For early Paleoindian populations on the Northern Plains, with their relatively high individual mobility, flexible residential mobility, and flexible gender/sex roles (as postulated in the model outlined above), this "equality" may or may not have been the case. As Rosaldo (1980:400) claimed, a woman's place in human social life is not a product of the things she does, but of the meaning her activities acquire through concrete social interactions. Without resorting to analogies and suppositions, archaeologists will never be able to discover the actual meaning and value that was given to prehistoric social actors by their societies. In other words, the "status" and value given to men and women and their contributions, as well as the exact nature of gender relations for Paleoindian times, will never be known for certain, because obviously these kinds of ideologies, social constructions, and value judgments, which are extremely variable and context-dependent between and within societies, are not recorded in direct physical ways in the archaeological record.

Because it is impossible to examine symbols and symbolic associations, art, iconography, burials, and grave goods for Northern Plains Paleoindians to the extent and degree others have done for various prehistoric and historic societies (e.g., Gero 1992; Gibbs 1987; McCafferty and McCafferty 1994), the model outlined in this chapter must, out of necessity, deal more with gender/sex roles and tasks, and participation and decision-making in subsistence and settlement activities, than with gender relations, value, status, and gender constructs, conflicts and negotiation, and the possibility of third genders. While it can be postulated that there must have been complementary and flexible tasks for Paleoindian men and women for both survival and the good of the group, the values and views held by people in the past can never be known. Archaeologists can, however, prevent themselves from projecting present-day values onto their interpretations about the past.

Furthermore, can archaeologists assume that gender, as a cultural construct which has dynamically structured contemporary and more recent societies, also

structured prehistoric societies, and, in this case, Paleoindian societies, in the same manner and to a similar degree? Gender as a cultural construct in early hominid populations probably played a much different and perhaps more limited role, if at all, in structuring their lives. Paleoindian populations in North America, however, were fully modern *Homo sapiens sapiens*, characterized by the capabilities for language, and technological and cultural traditions; therefore, they were most likely characterized and influenced by gender relations, whether to the same degree or manner as contemporary societies cannot be determined. Perhaps gender differentiation was not as major and relevant a structuring force in Paleoindian cultures as it is today in western cultures, in which the dichotomous aspects between men and women are frequently emphasized. As Bridenthal et al. (1987:4) noted, the notion of an inflexible polarity between male and female, which was pervasive during the classical era in Greece and Rome and likely in other worldwide state organizations as well, had been revived during the thirteenth century, and has remained until quite recently as part of the "mental equipment" of Europeans and Asians. Northern Plains Paleoindian groups, because of the important need for overlapping and flexible roles, may have stressed instead a fluidity of gender roles and relations. In addition, age and ability may have been more important factors than gender/sex for defining and structuring economic production, decision-making, and social life for Paleoindians.

SUMMARY

The Importance of the Acquisition and Exchange of Information for Northern Plains Paleoindians

The importance of the acquisition of information for hunting-gathering groups is evident since, as Mithen (1990:16) remarked, the availability of information is a major constraint on decision-making. Simply put, people need reliable, adequate, and appropriate information in order to make any decision, let alone a good one. Acquiring information about a wide range of resources would have been a crucial element in subsistence and settlement decision-making for Northern Plains Paleoindians, primarily because of the increasing variability of late Pleistocene environments that would have necessitated the ability to shift quickly to the exploitation of another patch type, or to the use of a different resource acquisition method if required (see related discussion in Mithen 1990:225).

In addition to the acquisition of information, the use of stored knowledge (Mithen 1990:73-79) and the sharing and exchange of information (Mithen 1990:66-73)

appear to be important factors for hunting-gathering populations. As Mithen (1990:73) indicated, many hunting-gathering societies possess an extensive amount of stored information relating to their environment and available resources, including memories and mental maps derived from previous subsistence experiences that would have been essential for making subsistence decisions. This stored information consists of two basic types: that relating to the general behaviour and characteristics of animals, plants, geography, landscape and climate, and that relating to more factual information concerning the actual location and density of resources (Mithen 1990:73). This latter type of stored information, though, would frequently undergo change, and would need to be continually revised and brought up to date.

Hunter-gatherers tend to pass on stored knowledge about the distribution, characteristics, and behaviour of various resources from generation to generation. This information is frequently related to younger members of the group through story-telling and recountings of actual subsistence expeditions (Mithen 1990:74-75). However, it may not have been advantageous or possible for Paleoindians to make subsistence and settlement decisions based entirely on past experiences of the environment, since there may have been increasing uncertainty and fluctuations in resource yields during the late Pleistocene (see Mithen 1990:39). Thus, instead of depending solely upon cultural transmission of environmental knowledge and trial and error experience, Paleoindian peoples likely also relied greatly upon information exchange among individuals in the same group and, as well, among members from different groups as a method for acquiring relevant resource information.

Hayden (1982) suggested that the dependence upon unpredictable and unreliable resources, especially *k*-selected species (i.e., large animals with longer maturation periods and therefore lower population densities and often high mobility) such as mammoth and bison, encouraged North American Paleoindians to form and maintain inter-group alliances and obligations in case of resource failure. Furthermore, according to Hayden (1982), the high proportion of exotic lithics discovered in many Paleoindian assemblages was acquired through exchange in these widespread interaction networks. In this argument, then, as suggested by Yellen (1976:96, cited in Mithen 1990:69), exchange and trade items may have had little economic utility; rather, they were basically devices to maintain contacts between groups and individuals, allowing information exchange to occur, and providing insurance in cases of resource stress. Although the dependence of Paleoindian populations on big game is questionable, it is probable that given the highly variable resources of late Pleistocene environments, Northern Plains Paleoindian groups relied heavily on information sharing

with other Paleoindian groups. Moreover, this exchange of information was probably an important part of mating, exchange, and social networks and alliances established with other groups (see related discussion in Mandryk 1993:47-48).

The subject of Paleoindian information exchange and the transmission of stored knowledge requires the consideration of the entire issue of scale; that is, what was the rate and speed of the environmental changes during the late Pleistocene in relation to human generations? Perhaps in the average person's lifetime, there would not have been any extreme and dramatic visible changes. Within several Paleoindian generations, however, there would have been a clear recognition that the nature and seasonality of the environment around them was changing, one of the more obvious and visible changes being the disappearance of mammoth and other large late Pleistocene fauna. Moreover, in some areas, evidence indicates that late Pleistocene-early Holocene changes in vegetation were very dramatic and rapid, occurring within three or four generations (Charles Schweger, personal communication 1995). Oral histories and the transmission of knowledge and beliefs from one generation to the next would have identified and recorded these changes.

It is therefore evident that the relatively rapid environmental changes and resulting variability in late Pleistocene environments would have introduced new and additional challenges for Paleoindian groups and individuals, making the potential solutions to subsistence problems and goals as well as the actual subsistence decision-making processes more complex (Raymond Le Blanc, personal communication 1995). The best way for Paleoindians to deal with this variability in resource locations and yields would have been through innovation, creative thought in making decisions, and experimentation with the environment, along with an emphasis on individual and residential mobility, and exchange between individuals and groups to gather essential information. Moreover, with the shift from a "Plaids" environment characterized by numerous habitats with diverse resources to a "Stripes" environment characterized by fewer habitats with less resource diversity, the emphasis in the knowledge base would need to shift as well. Overall, general and fundamental environmental knowledge was likely affected very little by late Pleistocene changes. More specific knowledge, however, concerning the presence and distribution of late Pleistocene animal and plant resources in distinct geographic areas would have been continually changing, as these resources would have been characterized by much greater variability in comparison to the resource variability that had been previously witnessed and probably well-known by populations prior to late Pleistocene environmental changes. Paleoindian information exchange, then, would necessarily have focused on this type of specific resource and

environmental information. The fact that Paleoindian occupations have been identified in a variety of New World environments, from the ice margins to the tropics and deserts, indicates that these populations were very resourceful, and able to learn quickly and transmit and exchange essential information needed for making good decisions regarding subsistence and settlement.

Decision-Making Concerning Storage and Distribution of Resources

While it is beyond the scope of this research to consider in detail decision-making relating to the processing, storage, and distribution of food resources, there are numerous ethnographic examples to suggest a wide range of variability in this realm of decision-making. In some societies, the distribution of the products of the hunt follows strict social rules; for example, among the !Kung, hunters have little control over the large game that they bring into camp (see Draper 1975:84, 106). In other cases, as among the Chipewyan (Sharp 1981) and numerous other societies (see discussion in Chapter III), once the meat was brought into camp, it belonged to the women and they had the right to distribute the products as they wished.

Concerning storage, Kornfeld and Francis (1991:447) implied that the practice of some form of storage strategy would indicate some sort of ability to control the distribution of these stored resources. More complex gender roles and relations, more specialization, and greater gender differentiation would thus be expected (Kornfeld and Francis 1991:447). For Plains Paleoindian populations, there is no direct or conclusive evidence for any type of storage of food resources. Kornfeld and Francis (1991:447) suggested, therefore, that gender roles likely had been more fluid and undifferentiated. However, the absence of identified physical storage facilities does not necessarily indicate the absence of a storage strategy. Meat and plant products can be dried, and then stored and transported in items or bags made of organic materials and placed in elevated caches, all of which would not leave any obvious physical archaeological traces. Moreover, storage does not only entail physical methods, but can also occur in the form of obligations. Admittedly, archaeologists may never be able to derive conclusive evidence about how resources were controlled and distributed by Paleoindian peoples. However, based on the current archaeological record, with evidence suggesting flexible residential mobility and indicating no extensive and stationary storage methods, and given the nature of the late Pleistocene environment, a tentative suggestion may be offered that the control and distribution of resources was flexible, and contextually dependent upon how and who collected the resources, and the

group's condition, location, and circumstances. Strategies would have ranged from communal and public decisions to determine the distribution of resources, the relatively informal sharing of resources, to more formal strict social rules for the distribution of resources and raw materials.

Paleoindian Gender/Sex Roles and Decision-Making: What Can We Say?

It is apparent that the reality of women's and men's lives, including Northern Plains Paleoindians, will not fit into static models such as those that argue for prehistoric women being responsible for gathering and domestic activities while men were the more mobile members of society, hunting and conducting trade and other prestigious and high status public duties. Paleoindian life was undoubtedly more complicated than this portrayal. It has been proposed here that in order to meet the demands of the rapidly changing environment, Paleoindian groups were characterized by overlapping gender/sex roles and decision-making realms, with an emphasis on flexibility and interdependency. Given the assumed low population density, small group size, and the nature of the environment, Paleoindian women were likely as mobile and visible as men. Undoubtedly, as well, women contributed greatly to the subsistence of the group by participating directly in actual subsistence tasks and by acquiring information concerning key resources and environmental conditions. It has been argued in this chapter that recognizing the multifaceted nature of subsistence tasks, and examining subsistence/settlement strategies from the perspective of gender, decision-making, and information acquisition, reveals that all Paleoindian individuals, including men, women, and older children, were likely involved to various degrees in acquiring information that was essential for making subsistence and settlement decisions. Moreover, it would have been advantageous, if not imperative, that most individuals make important economic contributions to the subsistence base of the group. As noted by Gero (1992:25) for Andean women, the activities and work of Paleoindian women, as well as men and older children, would not have been private and undertaken solely for the survival of the isolated nuclear family. Paleoindian women would have contributed to the needs and continuation of a much broader household base including kin relations, and ultimately extending to the entire community.

As well, it must be remembered that life cycle dynamics may have influenced the level and kind of involvement of Paleoindian individuals, both male and female, in subsistence activities throughout their lives. Currently among the Chipewyan of northern Saskatchewan, Brumbach and Jarvenpa (1994) observed that often women's

participation in hunting activities and intensity of that involvement are closely related to and vary according to their position in the family life cycle. Adolescent and younger women are very active in far-ranging hunting activities, but with increased family responsibilities, they tend to shift their focus from long distance travel for pursuing large animals to a focus on and continuation of their management of snare lines and fish nets closer to home. With later years and a decline in child-rearing responsibilities, women, however, once again increase their participation in hunting activities. Among the Efe hunter-gatherers of the Ituri forest, pregnancy, lactation, and child care do have some effects on women's work (see Peacock 1991); however, Efe women who are pregnant, lactating, or involved in some way with child care, in addition to making a high contribution to subsistence, also perform activities that are assumed by some researchers (e.g., Brown 1979a) to be "incompatible" with child care, such as carrying heavy loads and travelling long distances. Paleoindian women probably did not have childbearing and child-rearing responsibilities comparable to those of the Chipewyan, in that child care was most likely communal to some degree and women would have tended to have fewer numbers of children as compared to women in more sedentary groups. While life cycle dynamics would have influenced to some extent Paleoindian women's and men's participation in various subsistence activities, childbearing and child rearing likely would not have precluded Paleoindian women's involvement in more far-ranging subsistence tasks to the degree it appears to have affected Chipewyan women today.

Paleoindian women likely had relatively autonomous and public roles. Furthermore, for small Paleoindian groups living in a relatively dangerous and variable environment, a woman's role as mother, bringing children into the world and transmitting both social and environmental knowledge and information to those children, may have been especially important (Charles Schweger, personal communication 1995). Rather than a focus on the dichotomy and comparison of men and women, it is highly possible that Paleoindian individuals, regardless of sex, were valued for their skills, experience, and contributions, contributions that were seen as complementary, interdependent, and most importantly, necessary for the survival of the group. This suggestion does not imply some sort of "egalitarian golden age" for Paleoindian women, as it is recognized that multiple ideologies and differential prestige and access to knowledge might have present within Paleoindian society. Given the nature of late Pleistocene environments, however, it can be suggested with some certainty that the key element for Paleoindian social relations, subsistence organization,

and gender/sex systems would have been flexibility: flexibility in roles, decision-making, gender relations, and spheres of activities.

CHAPTER VIII

CONCLUSION

INTRODUCTION

The major goals of this research have been to attempt to incorporate people back into de-cultured and hunting-dominated, functionalist models of Paleoindian lifeways, to make more apparent Paleoindian individuals, men, women, and children as prehistoric actors, and to identify some of the possible dynamics surrounding gender/sex relations. A detailed and critical review of current methodologies and interpretations of Paleoindian subsistence/settlement strategies revealed the need for an alternative perspective for approaching the task of constructing a Northern Plains Paleoindian subsistence/settlement model. Hence, this study focused on examining subsistence and settlement strategies from the perspective of gender and information acquisition and decision-making, with more realistic recognition of the multifaceted nature of subsistence tasks. Based on late Pleistocene paleoenvironmental data, the increasing archaeological evidence that supports a more generalized and diversified lifeway for Plains Paleoindian hunter-gatherers, and ethnographic and gender studies, the model outlined here proposed that Paleoindian populations must have been characterized by interdependency and complementarity in gender/sex roles, with an emphasis on flexibility and fluidity in their gender/sex roles, relations, and decision-making processes. All Paleoindian individuals, including men, women, and older children, would have been involved in some way with acquiring information that was both essential for making subsistence and settlement decisions and vital in the context of increasing variability and changing environments of the late Pleistocene.

A CRITICAL REVIEW OF THE RESULTS OF THIS STUDY

The question arises as to whether or not, as a white, western, middle-class female, I have essentially produced a political gender feminist view of Paleoindian lifeways and gender/sex roles that is just as speculative, limiting, biased, and distorted as the traditional man-the-hunter and big game hunting models and interpretations that I wish to replace. I clearly recognize that my work is not totally uninfluenced by the social context in which it has been produced, by my cultural background and

experiences, by my social and economic situation and position in life, and by my preconceived beliefs and perspectives. All archaeological interpretations are inevitably influenced by social and cultural factors. In the early and middle twentieth century, sex roles and behaviour for state societies, especially North America, were more well-defined and inflexible, with men seen as the public figures and "breadwinners" and women as domestic housewives and mothers; prehistoric gender and sex roles were often interpreted in much the same manner. In recent years, however, roles, activities, and behaviours considered appropriate for a particular gender/sex (especially women) have become much more flexible and variable, and it is possible that this change is now allowing archaeologists, including myself, to view prehistoric gender/sex roles in a much different manner. But it is not simply a matter of a new mind-set or perspective controlling interpretations and reconstructions; instead, there are abundant ethnographic data to support the idea that for many hunting-gathering societies, flexible and complementary gender/sex roles and relations were a fundamental and important characteristic of their lifestyles.

Although throughout this work reference has been made to ethnographic accounts of North American Plains groups, North American subarctic hunter-gatherers, and !Kung hunter-gatherers, I am not claiming that any of these groups represent appropriate total analogues for Paleoindian populations. Given that late Pleistocene Paleoindians lived in an environment drastically different from more recent environments, in essence what can be viewed as a non-analogue environment and climate with more habitats and more species, some of which are extinct today, it is unlikely that any ethnographically-documented hunting-gathering group would provide a complete analogue for reconstructing Northern Plains Paleoindian lifeways and gender relations. These ethnographic accounts, nevertheless, can provide partial analogues and, perhaps more importantly, indicate a portion of the range of possibilities regarding the responses of hunter-gatherers to both their social and physical environments.

In addition to the use of partial analogues and the consideration of a wide variety of ethnographically-recorded societies, my work differs from many traditional uses of ethnographic analogy in that it involves a more critical reading of the ethnographic literature in terms of women and gender. I am not criticizing the use of ethnographic analogy, which is an essential part of archaeological interpretation (see discussion in Chapter V). I do, however, object to the use of models and interpretations that have been based entirely and uncritically on inappropriate analogies, on ethnographic accounts that may include only partial descriptions with respect to women

and gender, on value judgments within ethnographic accounts that may be biased, or on a small, selective, and narrow sample of ethnographic cases that appear to support previous western and state-level assumptions about gender relations and women (see similar claim in Kehoe 1991:431).

Hence, I consider my work, not as either extreme and radical feminist or post-processual archaeology with an underlying political agenda, nor as an option to current interpretations based on unquestioned views of rigid gender roles, but as an improvement over these standard interpretations and reconstructions. My examination of Paleoindian subsistence strategies has been critical and rigorous with regard to the site data, and has demonstrated that the big game hunting model and many of its associated assumptions, reconstructions that were previously considered valid and accurate, are, in fact, inadequate and questionable. In the process, I have exposed the following: the problems associated with relying upon unquestioned stereotypes and selective analogies and using them to support universalities and preconceived assumptions; the inaccuracies arising from the application of restrictive, inappropriate, and often meaningless dichotomies such as domestic/public and hunting/gathering to describe and organize archaeological views of non-state prehistoric societies; and the problems with using hierarchical perspectives and approaches that frequently attach implicit value judgments based on state-level standards to prehistoric gender/sex roles and relations. Moreover, rather than reducing gender to a single, static, and material dimension, as occurs when equating a single sex with specific tasks and tools, my reconstruction, through an emphasis on information acquisition and decision-making processes and the multifaceted nature of subsistence tasks, has viewed gender as a dynamic social and interactive construction. A search for regularities, predictable patterns, and universalities tends to dismiss "anomalies" and individual variation as insignificant, as Hayden (1992:34) did with his claim that the fact that women hunted was not important unless they had performed such activities on a regular basis. However, as Popper (1969:49) stated, this tendency to search for regularities and impose laws and universalities leads to dogmatic thinking. Furthermore, culture is not a simple, orderly, regular, predictable system but rather involves complex, dynamic, and continually changing patterns, variations, and processes. Hence, archaeologists cannot simply apply universalities, static dichotomies, and western or state-level concepts without obscuring diversity, limiting the examination of change, interaction, and dynamics in prehistory, and, ultimately, failing to advance our understanding of the past.

By claiming that my model is an improvement over previous work, I am not suggesting that the approach that has been employed in this research is the only valid and appropriate way for dealing with the question of reconstructing Paleoindian gender/sex roles and subsistence and settlement strategies. It is apparent that archaeologists need to experiment with different, but necessarily rigorous ways of presenting the past rather than solely relying upon static taxonomic, systems analysis, and hypotheses-testing procedures that tend to produce pasts that neglect the actual people who lived and created that past. A critical and rigorous approach to archaeology begins with not projecting preconceived unquestioned assumptions, universalities, and fixed and restrictive western or state-level dichotomies and concepts into the prehistoric past.

Moreover, I am not claiming that my interpretation is conclusive and truthful with regard to how Northern Plains Paleoindian men and women interacted and made subsistence and settlement decisions. All academic researchers and scientists selectively use and present data and facts, and I am certainly not exempt from this problem. However, all academic work is examined, reviewed, and critiqued by other researchers. It is also constrained by the current data, as well as new data and information and new techniques and perspectives to evaluate that data; therefore, a retreat into total relativism is highly unlikely. I consider my work to be a part of this critique, a process that, I hope, results in discussion, dialogue, changing ideas and views, the adoption of new perspectives, new avenues and topics of research, and the growth and expansion of knowledge and understanding of the past. Thus I regard my construction of Northern Plains Paleoindian gender/sex roles and subsistence and settlement strategies as an open-ended provisional interpretation, not a final and fixed model, that will likely be modified and improved upon as new data and interpretations emerge. It is an illusion to think that archaeologists will ever be able to "discover" or reconstruct a single fixed, objective, and complete past. Instead, using currently available evidence and methods, archaeologists create plausible and best explanations, reconstructions, and interpretations for the past. This creation is a continuous and never-ending process, but one that is characterized by an increase in knowledge, and better and more plausible constructions of the past when rigorous methodologies are applied to the study of reliable data.

In this research, I have attempted to go beyond a critique of the traditional Paleoindian big game hunting model by presenting contradictory evidence to traditional views and assumptions, and by formulating an alternative interpretation, one that is open to change, for Northern Plains Paleoindian subsistence and settlement strategies.

The question immediately arises as to the wider implications of this model, that is, if the model can be applied to other archaeological data. Archaeologists must admit that the archaeological record is limited in the data it contains and the information it can provide about the past. Moreover, especially concerning Paleoindian archaeology, the possibility exists that in many cases limited activity or short duration occupations will leave very sparse, if any, archaeological evidence. Hence, as a result of the combination of factors of poor preservation and site visibility, much of the data acquired by archaeologists provides only a very restricted and selected picture of Paleoindian life (see discussion in Dillehay 1989).

Considering the limitations of the Northern Plains data (i.e., of the very few early Paleoindian sites identified, few are camp locations and the majority are kill or processing sites or short-term occupations), it is likely that the model and approach used here could be more easily applied to Paleoindian data from other geographic areas within North America, such as the eastern area of the continent. The eastern Paleoindian archaeological database, while lacking kill sites, consists primarily of camp locations exhibiting in many cases artifact concentrations or activity areas, and evidence for a much more diverse range of subsistence activities than evident in Northern Plains Paleoindian sites, including lithic procurement, stone tool manufacture, wood/bone processing, butchering, cooking, plant procurement and processing, and fish procurement (e.g., the Debert site, see MacDonald 1968; the Shawnee-Minisink site, see McNett 1985; and the Shoop site, see Cox 1986). In other words, both environmental reconstructions and the archaeological evidence, including the lack of significant evidence suggesting an emphasis on the hunting of late Pleistocene megafauna, indicate that Paleoindian subsistence activities in these regions likely involved the exploitation of a wider range of resources including plants, seeds, nuts, fish, smaller game, and an occasional large mammal (Lepper and Meltzer 1991:178). In this context, the model and approach outlined in this research could probably be applied very effectively and productively to Paleoindian data from the east, since a wider range of decisions and activities are archaeologically represented at these sites, with which Paleoindian women and children, as well as men, must necessarily have been intimately involved.

To compensate for the limitations of the archaeological record, archaeologists must broaden their perspectives, rather than approach the archaeological record in a restricted and narrow manner. Archaeologists need to be aware of the wide variety of lifeways and cultural strategies and interpretations in ethnographically-documented and present-day cultures, and thus the wide array of potential possibilities to account for the past. As well, they should consider the value of multiple, but critical and rigorous

frameworks and theoretical perspectives in producing different views of the past. It is this plurality of interpretations of the past that ultimately allows for discussion and growth in our understanding of the past. Furthermore, in recent years it has become increasingly apparent that the archaeological interpretation of the past is only one method for constructing and viewing the past. Native groups, who have had little direct involvement in producing archaeological knowledge about their past, often have their own versions of the past that are very different from traditional archaeological interpretations (see discussion in Spector 1993:12-18). Archaeologists, as producers of public knowledge about other people and their pasts, hold powerful and privileged positions (Spector 1993:13); they must now deal with the issue of plural interpretations of the past, and how to incorporate multiple voices and views in their production of interpretations about the past.

LINKING GENDER WITH THE ARCHAEOLOGICAL RECORD

It is evident that gender relations and dynamics must have been operating at many prehistoric archaeological sites where inhabitants lived, worked, and interacted (see similar claim in Conkey 1993:9). Given that archaeologists deal primarily with the material remains of past societies, it is only natural that they would search for a way to link gender directly to the archaeological record. However, there are questions as to whether or not a direct linkage can ever be found. Northern Plains Paleoindians have been characterized in this model as logistically organized hunter-gatherers consisting of small groups of kin-related individuals who practised flexible residential mobility that at times was marked by reduced mobility and at other times, relatively high group mobility. This variable settlement and mobility strategy might have resulted in the blurring of task locations in the Paleoindian archaeological record at certain sites. Sedentary occupations are often characterized by relatively permanent and separate spaces for performing specific tasks, whereas more temporary occupations, because of the open, public, and short-term nature of the occupation, frequently have fewer of these distinct task-specific locations. Future studies could explore the possible effects and implications of residential mobility upon activity areas in Paleoindian settlement sites through use-wear analysis of lithic artifacts. These types of studies of activity areas and spatial patternings of artifacts could then possibly further incorporate hypotheses relating to gender dynamics (Figure 7).

However, there still remains the problematic and questionable matter of attaching gender/sex to specific tools and activities. While in most cases, it is unlikely

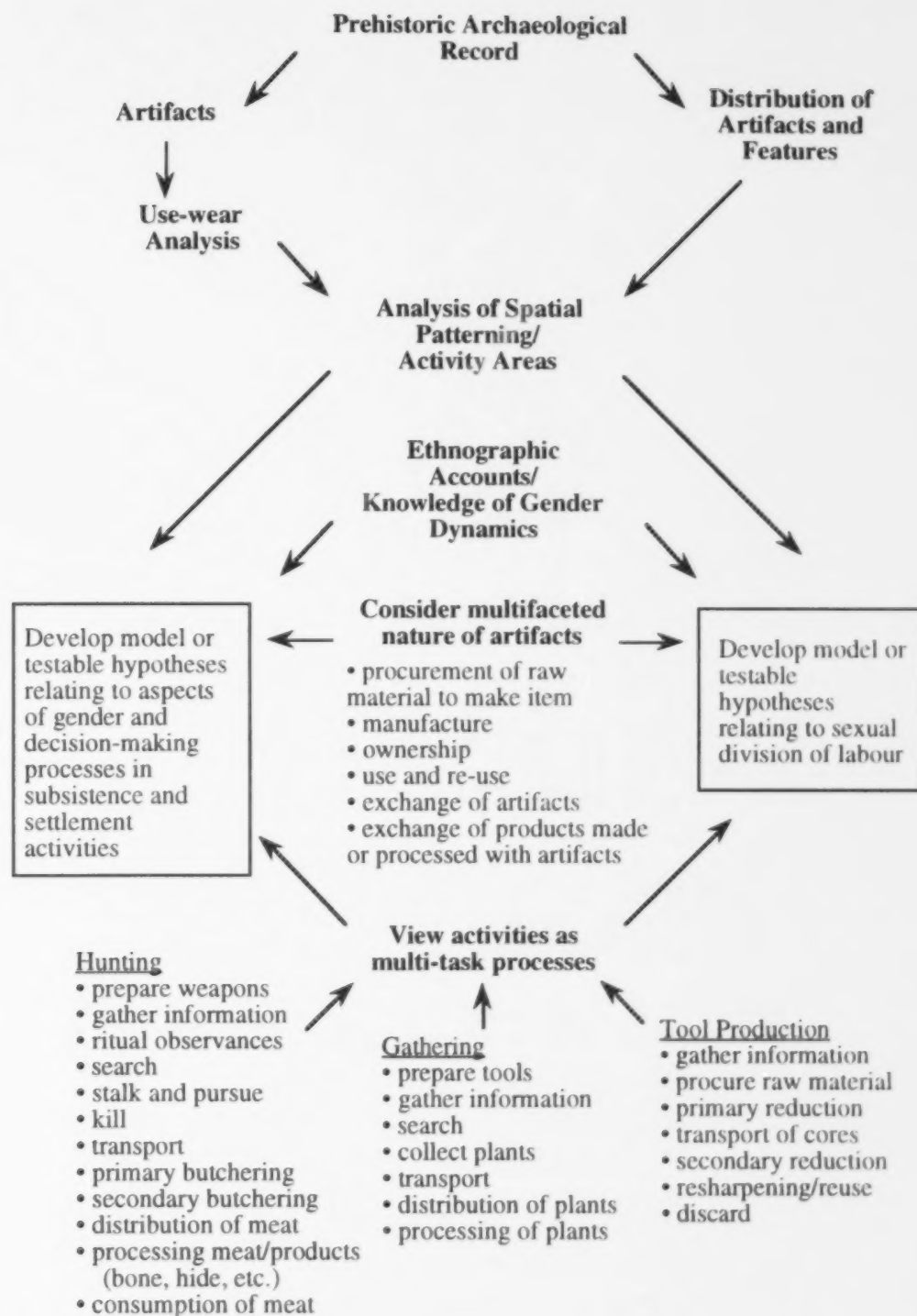


Figure 7. Approaches for Linking Aspects of Gender with the Archaeological Record.

that it will ever be known for certain whether a man or woman made and used a specific artifact or performed a particular task in past societies, there may be a few exceptions. Boismier (1991) developed a set of propositions, based on Osgood's (1970) detailed study of Ingalik material culture, that were concerned with how material items were differentially produced, used, and discarded in response to the organization of the sexual division of labour. He then tested these propositions using excavation data from the Crow Village site, a winter village site located in southwestern Alaska. Of his eight propositions concerning the intra-site distributions of items, seven were unequivocally confirmed, while one was only partially confirmed (Boismier 1991:210). Boismier (1991:210) was thus able to demonstrate that the behavioural contexts of use for the houses and kashim (men's house) at the Crow Village site were very similar to those recorded ethnographically for the Ingalik by Osgood (1970). Further, and more importantly, his study indicated that the prevailing sexual division of labour, in terms of who made and used different types of tools, conditions in part the variability in patterns of material association across an occupation surface (Boismier 1991:211). Boismier's (1991:211) intentions were not to develop a social theory for pattern formation, but rather to illustrate how this aspect of technological organization, that is, the sexual division of labour, may have contributed to formation patterns of association across an occupation surface.

The next crucial step needed to explore gender beyond simply assigning sex to tools or material items would be to begin considering gender systems and the actual social dynamics of production, use, and discard. As is evident for the Ingalik in Osgood's (1970) work, many tools and other material culture items were often made strictly by one sex, and then used and owned by the other sex or both sexes. For example, a net shuttle was made by Ingalik men, but used and owned by women, whereas a beaver net was made by women, and used and owned by men. Ingalik women prepared clothing and basketry for men's use as well as their own. This situation clearly demonstrates that assigning a single sex to a specific tool or material culture item masks the dynamics involved in the production, use, ownership, and discard of that item. Moreover, given what is generally known about small-scale egalitarian societies, in particular the fact that although many tools and items are "owned" by individuals, they are frequently loaned to others and in one sense could be considered communal property, can tools ever be used to designate gender/sex? While the data provided by Osgood (1970) are potentially valuable resources for providing information relating to the manufacturer, user, and owner of material culture items found in northern archaeological sites, archaeologists must remind themselves that there

is more to gender studies than simply labelling a tool as either male or female. In most cases, rich ethnographic data, comparable to that available for the Ingalik (Osgood 1970), and specifically outlining the makers and users of material culture, is not available for other ethnographically-documented populations, or, for that matter, for earlier prehistoric groups. Hence, in these situations, archaeologists need to broaden their attention to include other questions of gender that are more amenable to archaeological and anthropological analysis and study, rather than solely focusing upon the often sterile and static debate over task differentiation.

Archaeologists must necessarily conclude that gender as a social construct, including gender/sex roles and gender relations, is not totally recoverable from the prehistoric archaeological record. Currently it is extremely difficult to test directly most statements made about prehistoric gender, primarily because so little is known about the dynamics of gender and how these dynamics are reflected and expressed in material cultural items and the patterning of activities within a settlement. It is possible that at some future time, an increased understanding of gender dynamics and their reflection in the archaeological record will allow archaeologists to formulate some statements that are more amenable to testing directly against archaeological data. Although archaeologists, either now or in the future, may not ever be able to reconstruct entirely gender dynamics based on the archaeological record, the prehistoric past can, as demonstrated in this study, still be studied from a gender perspective (Figure 7). Moreover, archaeological gender studies must not concentrate solely on making prehistoric women more visible, studying them separately from men, because this approach would merely replace current inadequate models with ones that would be characterized by an equally imbalanced view. Rather, archaeologists must include a consideration of both male and female prehistoric actors in their analyses, emphasizing the dynamics of gender relations and negotiations and the significant factors structuring those relationships (see similar claims in Dommasnes 1992:8, 12 and Sørensen 1992:31-34).

SUMMARY

It is apparent that increasingly more archaeologists are realizing the significance of gender in shaping social roles, relations, and practices, and the importance of considering gender topics in archaeological studies. However, as Sørensen (1992:36) remarked, the problem of methodology remains, "its practical realization...lagging behind." The first step in Northern Plains Paleoindian archaeology is to stop relying

upon mechanical models based on unquestioned state-level assumptions that portray a rigid sexual division of labour. These models are not dynamic; they restrict rather than reveal and attempt to understand prehistoric gender relations. The diversity of gender/sex systems, which has been documented by gender research in recent years, clearly points to the fact that searching for and applying all-encompassing models and universal claims about men and women is unsatisfactory and likely distorting (Wylie 1992b:53). Only when Paleoindian archaeologists go beyond universals and common unquestioned notions are they in the position to consider the potential variability in roles for men and women, gender relations and strategies, the possibility of alternate power, authority, values, and beliefs, and, most especially, alternate roles for prehistoric women beyond that of wife, mother, and "domestic" worker.

With this acceptance of the diversity of both gender systems and the sexual division of labour, the next step that could provide valuable information about aspects of Paleoindian gender systems would be skeletal analyses. It is recognized, though, that only a small number of sites in North America contain human remains of significant antiquity; those sites that do, often contain remains that are fragmentary in nature (Steele and Powell 1992:303). Steele and Powell (1992:303) estimated that no more than 25 North American sites contained human remains that were identified as probably being older than 8,500 years B.P. Recognizing this limited sample, studies of late Pleistocene-early Holocene skeletal material could still potentially provide some initial data about the possible differences between males and females with respect to health, disease, nutrition, activity, physical stress or workload, risk, and mortality (Cohen and Bennett 1993:275). This information could be both complementary to and used in conjunction with use-wear studies of Paleoindian artifacts and archaeological analyses of activity areas at Paleoindian sites, and thus contribute to the development of models of Paleoindian gender dynamics.

It must be remembered that, ultimately, it is the archaeologist who creates the past. As Kornfeld (1988:215) indicated, only when Paleoindian archaeologists broaden their perspectives and explore beyond the hunting system to include other aspects of hunting-gathering life can the full range of Paleoindian lifeways be considered. That range includes the following: the gathering of plant resources and raw materials; the production and repair of shelters, clothes and carrying equipment; the raising of children; the interaction of individuals and groups; the establishment of relationships and ties; and the reaffirmation of ideological beliefs. It is hoped that the study presented here has begun to do this "exploration beyond the hunting system" to restore some sort of balance to the Paleoindian past, and that it will serve as a basis for

approaching other related archaeological problems and research focusing on prehistoric gender/sex roles and relations, not only for the Paleoindian period but for other time frames as well.

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APPENDIX A

**CHRONOLOGICAL LIST OF SELECTED
MAJOR PALEOINDIAN STUDIES AND INTERPRETATIONS**

Reference	Paleoindian Model or Interpretation
Haury 1953	In view of the 1952 discovery of eight Clovis fluted points directly associated with one adult elephant at the Naco site, located in southeastern Arizona, Haury (1953) concluded that, because most of the points were located in vital target areas (i.e., between the skull base and rib case), this mammoth had been killed by Clovis hunters who hurled eight projectile pointed spears at it and subsequently salvaged desired parts after the mammoth had fallen on a sand bar. The site area, a fossilized stream bed, was considered the scene of "attack."
Haury, Sayles, and Wasley 1959	In 1955-56, excavations at a Clovis site in southeastern Arizona, the Lehner Ranch, produced thirteen points, mostly Clovis fluted, eight butchering tools, charcoal from two fires, nine immature <u>Mammuthus columbi</u> remains, and the remains of horse, bison, and tapir. Haury et al. (1959) believed that the presence of only young mammoths was deliberate, and thus they proposed an age-selective cull model in which Llano hunters had culled younger mammoths from the herd because they were easily isolated and killed, and proved tastier. They further argued that the "slaughter" had occurred on a gravel bar of an ancient stream; most likely the killing had been over intervals because of the dispersal and unequal preservation of bone.
Irwin, Irwin, and Agogino 1962	In 1960, <u>Mammuthus columbi</u> bones were discovered associated with scrapers, choppers, flakes, quartz rocks, perforators, and a bone awl at the Union Pacific Mammoth site located in Wyoming. No projectile points were recovered, but the apparent presence of butchering marks on bone as well as crushed areas on the skulls were believed to indicate human involvement. The scenario provided by Irwin et al. (1962) to account for this discovery at Union Pacific was that the mammoth had been driven into a bog and had become mired in muck. Paleoindian hunters then slaughtered the animal by possibly using fire-hardened wood points or large cobbles to stone the animal to death; the hunters then butchered the mammoth.
Wendorf and Hester 1962	Wendorf and Hester (1962) reconstructed the southern Great Plains environment through pollen and invertebrate studies, with an aim to analyze how early "man" used this environment. They examined the types and locations of Paleoindian sites on the

Llano Estacado, the types of animals hunted by Paleoindian populations, their hunting and butchering techniques, other economic pursuits, and tool manufacture. Wendorf and Hester (1962) concluded that the Paleoindian cultural tradition practised throughout the Great Plains from Llano, Folsom, to Parallel Flaked times had remained relatively unchanged and continuous over time, and that the Paleoindian groups had adapted to the use of this environment primarily through big game hunting. Furthermore, they supported the belief in the division between Llano/Clovis being associated with mammoth hunting, and Folsom and following traditions being associated with bison hunting. The acquisition of other animal species and gathering activities were considered by them to be only minor supplements to the main source of meat (i.e., bison and mammoth). They also believed that Paleoindian populations utilized active hunting methods, including stalking at water locations and stampedes, for acquiring big game.

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- C. V. Haynes 1966 In a review of mammoth sites and hunting techniques, Haynes (1966) concluded that Clovis hunters had been specialists in the pursuit of mammoths, but had not been unwilling to take other kinds of quarry, as was suggested by bison bones at Clovis and Lehner sites (Haynes 1966:111).
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- Willey 1966 Willey (1966) believed that the lifeways of Clovis, Folsom, and Plano complexes had been primarily centred on the killing of large game animals, and that specialized and skilled hunters of big game had stalked and trapped animals at waterholes. The collection of small game and plant items, however, was seen as "opportunistic" whereas big game hunting was of primary importance.
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- Hester 1967 Hester (1967:169) argued that only mammoth and bison had been hunted in quantity by early populations, and that the staple food for Llano cultures had been mammoth and, later, bison (1967:179), although evidence suggested that early "man" had hunted whatever animals "he" could. Moreover, he believed that Paleoindians had hunted by stampede, fire drive, and differential selection of young of the species (Hester 1967:179). Hester (1967:170) also concluded that Pleistocene "man" could have caused the extinction of megafauna only after natural causes, environmental changes, and changing ecological niches had reduced the population of the species.
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- Martin 1967,
1973 Paul S. Martin, one of the major supporters of the "overkill" model, argued that big game hunters from Siberia had moved across Beringia into North America, through the ice-free corridor. In 1000 years, they had reached the tip of South America and left behind a land devoid of Pleistocene megafauna. He believed that, with the combination of the inexperience and abundance of prey, and the population explosion of humans as they spread through the Americas, the result was the rapid rate of killing of prey animals. Martin (1967, 1973) maintained that

overkill alone explained the global pattern of Pleistocene extinction of megafauna.

Hemmings and
Haynes 1969

Hemmings and Haynes (1969) indicated that evidence clearly demonstrated that mammoths had been killed and butchered by Clovis hunters at the sites of Lehner, Naco, Liekum, and Murray Springs. At the Escapule site, however, two Clovis points were recovered, but no evidence of butchering was identified. They therefore concluded for the Escapule remains that a large immature mammoth had been wounded and eventually killed by the Clovis points, but the remains had never been used by Clovis hunters (Hemmings and Haynes 1969:188).

Wilmsen 1970

Wilmsen (1970) focused on a rigorous lithic analysis of assemblages from Paleoindian sites located from the Plains to the eastern part of North America, and ranging in age from 11,000 to 6,000 years B.P. He adopted a New Archaeology approach to generate hypotheses for testing, with an aim to reconstruct general laws of cultural process. Focusing upon raw materials, site activities, subsistence, and functional and technological variation of tools, Wilmsen (1970) examined structure in Paleoindian culture, specifically organization of Paleoindian life (bands, structure, adaptations, working/task parties, territories, subsistence). He concluded that technological, functional, social, and ecological processes had been structurally interrelated in Paleoindian cultural systems. More significantly, Wilmsen (1970:81) pointed out the need for archaeologists to inquire more deeply into the nature of Paleoindian life, rather than focusing solely on projectile point typology, chronology, and hunting.

Hester 1972

In a discussion of Blackwater Draw Locality No. 1, Hester (1972) concluded that the pond had been a favoured hunting spot of Paleoindians. He further suggested that abundant evidence indicated that mammoths had been ambushed, killed individually as they stood in shallow water by peoples using Clovis points, and subsequently butchered. Evidence also suggested to Hester (1972) the presence of a nearby camp where tools had been made and meat had been cooked. Moreover, the recovery of a grinding stone indicated to Hester (1972:178) that plant foods had supplemented the diet of these early Paleoindians.

Judge 1973

Judge (1973) focused on an analysis of Paleoindian "settlement technology" through a regional survey of the central Rio Grande Valley in New Mexico. He considered settlement technology as the primary vehicle/subsystem of articulation between the total cultural system and its environment. His work was clearly influenced by the New Archaeology, Lewis Binford, and systems theory. Judge first described artifact types and lithic technology, and then discussed settlement/environmental data for each Paleoindian complex (Clovis, Folsom, Belen, and Cody). He used statistical analysis to compare lithics and technology between complexes. Judge (1973) proposed three conclusions:

that the difference in point types may have been due to variations in the types of foreshafts used; that Clovis had been the generalized base from which a number of lanceolate points developed; and that water/overview had been key variables in Paleoindian settlement patterns.

Jennings 1974

In an introductory text dealing with North American prehistory, Jennings (1974) suggested that Paleoindian populations may have practised a wider subsistence base than the Paleoindian finds indicated, and that mammoth kills had been possibly the exception. However, he made only very brief reference to what that wider subsistence base may have entailed (i.e., other animals, waterfowl, and vegetal foods).

Jennings (1974:91-92) also proposed a lone-hunter analogy to characterize Llano hunting practices, and used the Ona tribe from South America as a comparison, that is, the stalking of large animals by lone individuals, which required great skill and patience for a hunter to get close enough to a large animal and wound it. He argued that if the lone-hunter analogy was sound, then it was reasonable to postulate the following characteristics for Paleoindian populations: the nuclear or extended family as the effective social and economic unit; sparse population and thus no competition or fighting; the continuous quest for food except when lucky windfalls such as a mammoth provided surplus for a few days; few material possessions, primarily consisting of tools and weapons; and roving and scattered temporary camps (Jennings 1974:92). Jennings (1974:94), however, acknowledged that this postulated lifeway went "far beyond the empirical evidence."

Jennings (1974:104-105) suggested that there had been no great change in lifeways from Llano times to Folsom times, despite some artifact changes and the introduction of the new fall/jump hunting technique. He suggested that the Folsom culture had been characterized by a larger hunting group, more cooperation, social groups consisting of several families, and a camping pattern and simple social organization resembling that of the Llano culture (Jennings 1974:109).

Wilmsen 1974

Wilmsen (1974) believed that Paleoindian populations had lived in an environment slightly cooler than today's in a landscape more varied but similar to that of today. Moreover, their entire livelihood was derived from hunting and gathering wild resources, and they used the kind of spear point that was one of the finest products of flintknapping technology ever created (Wilmsen 1974:15).

Wilmsen (1974), focusing on the Lindenmeier site, examined the organizational structure of Paleoindian populations, that is, the ways in which they had arranged themselves to cope with social and ecological conditions through population movements, resource procurement strategies, and group formation and maintenance. He was clearly influenced by the early goals of the

New Archaeology; this influence was apparent in his arguments for the need to formulate models by means of a systematic series of hypotheses in order to connect physical remains, that is, archaeological data, to theoretical concepts. He proposed several hypotheses concerning the variations in projectile points from the Lindenmeier assemblage. Using statistical analysis of this projectile point variation, Wilmsen concluded that point shapes were distinctively different between two areas of the site. Moreover, analysis of raw material also indicated differences between the two site areas (Wilmsen 1974:114). He concluded that two socially distinct groups had occupied Lindenmeier, and the origin of raw materials suggested that these groups had moved in different geographic areas (Wilmsen 1974:114). Wilmsen (1974:116) noted, however, that at the present time there was no way to test this settlement model because there were few sites in the area of the same age. He also turned to ethnographically known hunting societies such as Great Basin groups and !Kung Bushmen bands in order to obtain a fuller picture of band organizational structures (Wilmsen 1974:117-118).

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| Hester 1975 | Hester (1975) conducted a paleoarchaeological study of the Llano Estacado very similar to the study and conclusions presented earlier by Wendorf and Hester (1962). Hester (1975:252) supported the belief that big game hunting had been of primary importance for early Paleoindians, despite the rare evidence for the use of other game and plants. In an attempt to reconstruct demography, he estimated populations from the number of projectile points, and band range from the distribution of quarry sites and the raw materials used at Paleoindian sites on the Llano Estacado (Hester 1975:255-256). Hester (1975:256) concluded that the major governing factor in the relationship between human populations and the environment on the Llano Estacado had been the presence/absence of surface water, with the second governing factor being the availability of stone for tool manufacture. |
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| Frison 1976 | Frison (1976) described "deliberately stacked" mammoth bones that had been discovered at the Colby site, Wyoming. In addition, a point similar to the Clovis fluted point type was found beneath a bone pile. Frison (1976:730) suggested that this fluted point had been possibly placed as an offering, or lost or lodged in bone tissue. He also maintained that bone stacking had been common in Paleoindian bison kills (Frison 1976:730). |
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| Frison 1977 | In a discussion of early Paleoindian economic orientations in the Bighorn Basin of Wyoming, Frison (1977:112) argued that the Hanson site data suggested that "the Folsom period was little more than another group of hunters and gatherers who possessed a highly sophisticated flint technology." |
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| Hester and Grady
1977 | Using statistics, Hester and Grady (1977) attempted to determine band and territory size, pattern of resource use, kinds of sites and |
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distribution, and band social characteristics for Paleoindian occupations on the Llano Estacado. For example, they used the number of points, hearths, and butchering areas to estimate band size. They assumed that their sample of Paleoindian sites from the Llano Estacado was adequate and reflective of Paleoindian patterns of site distribution; thus, the archaeological database allowed inferences to be made about past behaviour (Hester and Grady 1977:80). Hester and Grady (1977:92-94) concluded from the data that for Paleoindian occupations, band size had been 25 members, composed of six families (five to ten hunters) with a territory of a 90 to 120 mile radius. They concluded that their statistical analysis of the archaeological data supported the hunter-gatherer model that they initially had outlined and had developed from ethnographic data from Lee and DeVore (ed. 1968).

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| Saunders 1977 | In view of his reanalysis and taphonomic study of the assemblage recovered from the Lehner site, Saunders (1977:58, 62) proposed that Lehner represented a single mammoth family unit that had been catastrophically cropped by Clovis hunters who knew and exploited the behavioural patterns of mammoth. |
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| Frison 1978 | In his comprehensive volume dealing with Northwestern Plains prehistory, Frison (1978) presented a convenience culling model to account for the archaeological remains at the Colby site. Single individual mammoths were selected by Clovis hunters, wounded, and left to wander towards and die at watering areas where eventually they were utilized by hunters. |
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| Jennings 1978 | In discussing the Llano culture, which he dated at 12,000-11,200 years B.P., Jennings (1978) argued that Llano hunters had preferred mammoth, and had hunted in ambushes or boggy locations by stalking individual mammoths and butchering them on the spot. Moreover, life for these early Paleoindians was roving and cyclical, with 10 to 20 people as the socio-economic unit. All evidence, including tool types, indicated that Paleoindians had been hunters of big game (i.e., mammoth, bison, muskox, caribou, camel, horse, sloth), and that this had been their basic economy. In addition, Jennings (1978) viewed "man" as the world's most efficient predator who had hunted mammoth and other late Pleistocene game in North America into extinction in only 1000 years, although the "slaughter" would have been easy, as the continent had been rich in game. |
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| Wilmsen and Roberts 1978 | In the concluding report on the investigations at the Lindenmeier site, Wilmsen (Wilmsen and Roberts 1978) discovered that stylistic variation among projectile points was highly significant and spatially discrete, localized in two areas of the site. To account for this, Wilmsen proposed that two geographically distinct but interacting groups, each identified with one of the stylistic sets of projectile points, had participated in common social and procurement systems, but had been sufficiently independent to maintain some degree of stylistic distinction |
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(Wilmsen and Roberts 1978:179). The territorial ranges of these two Paleoindian groups overlapped at Lindenmeier, where they came together to cooperate in bison hunts and transactions such as marriage, initiation rites, and other ceremonial aspects. Thus, Wilmsen and Roberts (1978) viewed Lindenmeier as being one of the larger camp units within a settlement system characterized by a greater number of smaller temporary campsites at which a lesser variety of tasks were carried out.

Saunders 1978/79

Saunders (1978/79:8) argued that there was definite evidence that Clovis peoples had hunted mammoth; however, the Clovis hunter had been revealed to be a willing opportunist and scavenger as well (Saunders 1978/79:10).

C. V. Haynes 1980,
1982

Basing his argument on radiocarbon dates, Haynes (1980:115) concluded that the Clovis complex was restricted to 11,000-11,500 years B.P. and Folsom to 10,000-11,000 years B.P. In addition, Haynes (1980:118-119) noted that Clovis sites were relatively small and fewer in number compared to later Folsom sites; this observation indicated an increase in population and cultural diversity. He pointed out that the degree to which vegetal foods had been used by Clovis peoples was unknown due to lack of preservation, but presumably it had been great (Haynes 1980:119). The evidence from the Murray Springs and Lehigh sites indicated that horse, camel, bear, and tapir, and rabbit may also have been hunted by Clovis hunters (Haynes 1980:117). However, it was clear to him that the subsistence had been primarily based on big game, with an emphasis on mammoth and bison for food and material resources (Haynes 1980:115, 117; 1982:383, 390). It also appeared that, for Clovis sites, mammoth carcasses had been only partially utilized and disarticulated (Haynes 1980:119, 1982:390).

It was difficult for Haynes to imagine the cropping of entire family units, as Saunders had suggested, as a successful and viable mammoth procurement strategy. Instead, he suggested that mammoths had been attacked individually by Clovis hunters (Haynes 1980:119, 1982:391), and had been selected according to their behaviour and not their age (Haynes 1982:392). Moreover, he believed that Clovis peoples had studied and taken advantage of the predictable behaviour of individual mammoths to hunt successfully (Haynes 1980:118, 1982:392). Most mammoth kills were situated at springs and ponds, and this distribution suggested to Haynes that the animals had been ambushed at watering places (Haynes 1982:392).

Haynes argued that the basic Clovis tool kit was essentially the same in the eastern and western parts of the continent; this similarity implied a high degree of mobility and lack of dependence upon a restricted environment (Haynes 1980:119). It was clear to Haynes that Clovis hunters had moved over extensive areas for lithic sources, and had used both local sources and exotics up to 300 kilometres away (Haynes 1980:118-119).

The development of the Clovis culture was seen as occurring during a time of great environmental change (Haynes 1982:398). Moreover, Haynes suggested the possibility that the presence of skilled late Paleolithic hunters at a time of such great environmental stress had provided a fatal combination that led to large-scale megafaunal extinction (Haynes 1982:398).

Saunders 1980

Saunders (1980:95-96) argued that the best analogies for mammoth hunting were non-native practices of elephant hunting such as reducing densities in game parks. He also suggested that mammoth hunting had been only one component but an important one in a mixed subsistence system for Paleoindian populations (Saunders 1980:87).

Saunders (1980) provided a model for "man"-mammoth relationships in late Pleistocene North America. He examined modern elephant age structure data from Africa and compared it to the age structures of Clovis sites in North America. Saunders (1980) concluded that the sites of Lehner, Dent, and Miami represented single family units that had been confronted, contained, and cropped catastrophically by Clovis Paleoindians, whereas the Murray Springs site and Blackwater Draw localities represented non-natural groupings of mature mammoths from the accumulation of isolated kills and scavengeable mammoth carcasses. Saunders (1980:97) concluded that Clovis hunters had efficiently exploited the predictable behaviour of mammoth family units, and that they had been successful, efficient, but wasteful hunters who were keyed primarily to the catastrophic cropping of complete family units. Saunders (1980:96) concluded that, because the populations of mammoth were healthy at both the Lehner and Dent sites, and therefore not under any stress, human populations had been a factor in extinctions of Mammuthus columbi.

Frison 1982a

Frison (1982a) proposed that Paleoindians had used caches of frozen meat to survive the harsh winters of the Northern Plains. He argued that data from the Agate Basin, Horner, and Carter-Kerr/McGee sites (i.e., the presence of bone piles and seasonality studies) supported this model that bison had been killed in the late fall or early winter and stacked for winter use. He argued that, since the seasonality determinations of Paleoindian bison kills were primarily fall and winter, the model of frozen meat caches best fit the data, as opposed to the model of pemmican making and meat drying of the late Prehistoric/historic times, which was characterized by very different seasonality and features.

Hayden 1982

Hayden (1982) applied a framework in order to study interaction and the transition from Paleoindian to Archaic stages in North America. He argued that Paleoindian times had been characterized by the use of exotics, fine quality tool craftsmanship, stylistic homogeneity over large areas, and low stylistic diversity. Thus, he concluded that Paleoindian networks had been extensive. Hayden (1982) argued that these widespread

interaction networks and exchange during the Paleoindian period had been the result of a reliance on unpredictable, unreliable resources or k-selected species (i.e., large animals with long maturation terms and low population densities, such as bison and mammoth, which were an unreliable and fluctuating resource base and thus easy to overexploit), and also because of the need to maintain alliance networks to fall back on when resources failed. Hayden (1982) argued that the actual exchange had been of little or no benefit; rather, it was primarily used to maintain social contact and mutual obligations. In addition, he referred to ethnographic examples to support the idea of the importance of alliances to hunting-gathering groups with unpredictable poor resource bases. Hayden (1982:119-120) concluded that during the Archaic, this exchange had broken down due to the increase in technological innovations and the switch to a reliance on r-selected species, which were more reliable and numerous.

Frison 1984

In a study of the Paleoindian Carter/Kerr-McGee site in Wyoming, Frison (1984:305) concluded that the site reflected an economic orientation toward communal procurement of large ungulates through the continual use, over 2,000 years, of an arroyo trap. He estimated that 75 to 100 persons had been involved with the site's procurement operations; this estimate allowed for 15 to 20 grown males to carry out the communal hunt from start to finish (Frison 1984:309). With an exclusive diet of buffalo meat, the cultural group of 100 could have easily lived on one mature animal a day (Frison 1984:309).

Frison (1984) also argued that, in view of the current data, Paleoindian Plains communal bison hunting had been conducted during cold weather months, that late fall and winter had been favourable times for communal hunting, and that frozen meat caches had been used to store surplus meat. In addition, individual and small group hunting were practised throughout the year (Frison 1984:308). Frison (1984:308) considered the hunt to be male activity, while butchering and processing probably involved most of the group. Basing his argument on ethnographic evidence, he suggested that supernatural help had been invoked by religious specialists of Paleoindian times to increase the chance of success of the communal hunt (Frison 1984:308). He also suggested ritualistic connections between killing large animals and fluting Folsom projectile points; this interpretation was based on the evidence indicating projectile point fluting activities and the presence of red ochre in the Goshen/Clovis and Folsom levels at the Carter/Kerr-McGee site and at the Agate Basin site, as well as in the Folsom level at the Hanson site (Frison 1984:309). The North American Paleoindian hunter was, according to Frison (1984:306), "innovative and resourceful in his economic efforts. He was selective in the animals he took and was able to live quite well. He was not the poor nomad continually facing starvation but instead, was able to develop and continue a lifestyle that was successful and changed little for nearly two millennia."

Bamforth 1985

Bamforth (1985) focused on the technological organization of Paleoindian non-communal bison hunting on the Llano Estacado. He argued that focusing on mass communal kills (as researchers such as Frison 1978 and Wheat 1972 had done) may have only masked the true variability in Plains Paleoindian lifestyles, neglected small group non-communal patterns of procurement, and focused only on highly specialized and organized events and technologies (Bamforth 1985:243). He suggested that it was possible that communal hunting may not have been as important as it was on the Northern Plains during the Protohistoric and historic periods; instead, he argued that non-communal hunting may have been particularly important on the southern High Plains during the Paleoindian period (Bamforth 1985:244).

Bamforth (1985) examined the Lubbock Lake site data and eight small bison kill features, and focused upon lithic use-wear, technology, and lithic sources. He concluded that at Lubbock Lake, reliance on low quality and unmodified and minimally modified flakes had been a consistent part of the Paleoindian adaptation (Bamforth 1985:253), with no emphasis and reliance on high quality exotics, stylized tools, and sophisticated technology as many had previously argued for Paleoindian strategies (Bamforth 1985:252). He noted that evidence at Lubbock Lake showed that tools had been treated in two ways depending on raw material; nonlocal stone had been curated, and local stone had been expediently used (Bamforth 1985:254-255). He concluded that small group hunting must have been relatively unpredictable; thus, the solution had been to carry tools needed to make use of local materials when necessary, as among the Nunamuit (Bamforth 1985:256). This practice resulted in a predictable set of equipment being carried on hunts (Bamforth 1985:256).

Greiser 1985

Greiser (1985) attempted to reconstruct a picture of Paleoindian lifeways for the Central High Plains of northeastern and central Colorado, southwestern Wyoming, and western Nebraska and Kansas. She relied primarily upon Jochim's (1976) model of hunter-gatherer subsistence and settlement patterns in order to reconstruct, using climatic and available archaeological data, Paleoindian adaptations. Greiser (1985) believed that during the late glacial, the high equable climate and cool moist conditions had resulted in abundant, diverse, and dispersed flora and fauna, a long growing season, and little migratory behaviour. She predicted that late glacial hunter-gatherers had practised a mixed strategy, characterized by a broad-based economy, less emphasis on storable resources, and, because of cold winter temperatures, an emphasis on large game. Greiser (1985) also argued that a considerable proportion of the diet had come from large herbivores, especially reliable mammoth and bison. She predicted that late Pleistocene populations had emphasized small game during the late spring, vegetal products during the summer and early fall, and large herbivores in the late fall and winter. In addition, these early Paleoindians moved about the landscape in small family groups of about 25 people, and were relatively

mobile during spring, summer, and fall. Greiser (1985) postulated that late glacial hunting-gathering groups had congregated for cooperative hunting in the late fall and early winter, a time when the herds congregated for breeding.

At the end of the Pleistocene, with increasing seasonality and aridity on the Plains, the variety of flora was reduced. Migratory behaviour also became established. Greiser (1985) thus viewed Paleoindian populations at this time on the Plains as shifting to a mixed strategy economy that was less broad-based. This economy was characterized by an increase in exploitation of faunal resources as a response to more severe winters, in addition to an emphasis on storable resources. Sites were located near reliable resources and near rivers and springs because of the decrease in water, and movements were more structured and less random.

Martin, Rogers, and
Neuner 1985

Martin et al. (1985) analyzed Paleoindian adaptations and focused specifically upon the effect of the dramatic changes in biogeography that had occurred during the Pleistocene-Holocene transition. They supported the hypothesis of an early arrival of human populations into the New World. Martin et al. (1985) argued that climatic changes between 12,000 and 10,000 years B.P., with increasing seasonality and decreasing moisture, had resulted in the breakup of complex Pleistocene floral and faunal assemblages. With faunal extinction and these overall environmental changes, Paleoindian cultures were severely stressed, and forced to adopt new adaptations and strategies. They viewed increasing seasonality as resulting in more seasonal gathering for Paleoindian populations, since there would be seasonal differentiation in resource availability. Increased seasonality would also have encouraged the development of seasonal planning, and methods to store and preserve foods, and would have facilitated herd behaviour and migrations, and thus encouraged mass communal kills. Martin et al. (1985:27) also argued for a lowered potential for hunting big game and for greater resource specialization due to seasonal differences and a decrease in resource diversity.

Frison 1986a

Frison (1986a:104) argued that the evidence from the Colby site furthered the case for Clovis cultural groups as efficient mammoth hunters, rather than as scavengers and opportunists able only to take mammoths who were incapacitated. Moreover, he postulated that, in addition to mammoth procurement being planned, patterned, and predictive, it would have required a religious specialist to enhance the success of the venture in the same way that communal bison hunting and pronghorn hunting had been organized and executed in ethnographic accounts (Frison 1986a:106). Despite his belief that Clovis points were efficient weapons designed and used to kill mammoth, he viewed Saunders' (1977) model of direct confrontation and cropping of entire herds as highly improbable with Clovis weaponry (Frison 1986a:107-109). Instead, he suggested that Clovis hunters

monitored herds and maneuvered individual mammoths into locations where the hunters could spear or dart them and wait until they were weak enough to finish them off.

Bonnichsen, Stanford,
and Fastook 1987

Bonnichsen et al. (1987) argued that a pronounced environmental threshold event at 11,200-10,800 years B.P. was important for explaining the synchronous extinction and origination of Paleoindian adaptive patterns in North America. They proposed that the development of the American projectile point pattern represented an intensification of big game hunting. Moreover, this development had been a response to rapidly changing environments and declining megafaunal populations (i.e., Clovis, Nenana, El Jobo points all appeared prior to extinction; therefore, humans from geographically separate environments had responded with similar strategies). After extinction, there was a nearly synchronous appearance of the Paleo-Arctic tradition in the north, the Dalton tradition in the southeast, and the Agate Basin, Hell Gap, and Folsom traditions on the Plains. They argued that many of these lithic patterns had remained similar to pre-extinction patterns, but were associated with new procurement systems and a focus on new species (e.g., in the Plains, bison and mountain sheep; in the north, caribou; and in the south, Southwest, and Great Basin, small game).

D. Fisher 1987

Daniel Fisher (1987) compared the distribution of sex, age, and season of death within and between samples of butchered and non-butchered mastodon individuals to evaluate the relative incidence of hunting and scavenging associated with Paleoindian utilization of mastodonts in the Great Lakes region during the late Pleistocene. He concluded that the patterns were different, and he argued that this difference constituted strong support for procurement of all butchered carcasses by hunting (Fisher 1987:359).

Frison 1987

Frison (1987) viewed the Clovis cultural complex, dated at 11,200 to 11,500 years B.P., as the earliest undisputed evidence of sophisticated hunting groups on the High Plains. He noted that Clovis hunters had possessed highly developed stone tools and weaponry, and had been able to take a wide variety of large ungulates, although the full range of their hunting and gathering activities still remained unproven (Frison 1987:181). Frison (1987:184) also argued that Clovis hunters had definitely hunted mammoth; the presence of Clovis points in mammoth carcasses provided evidence for their use in killing. However, it was difficult to say how much of their economy was dependent upon mammoth procurement. Frison (1987:189) was skeptical of Saunders' family unit cropping, and instead he thought the best strategy had been to become familiar with the movements of mammoth family groups and pick off individual strays opportunistically. Frison (1987) maintained that later Paleoindian groups had shifted their focus to bison, pronghorn, and mountain sheep procurement. Moreover, he believed that

prehistoric hunters had been forced to move in response to animal movements (Frison 1987:217).

Todd 1987

In a detailed taphonomic analysis of New World kill-butchery sites, Todd (1987) demonstrated that the Paleoindian hunting pattern was much different from that previously believed, and that which was based on Plains ethnographic or ethnohistoric cases and on interpretations developed from Late Prehistoric bison kill sites. He demonstrated that Paleoindians had been responsible for relatively few of the extensive bone beds originally claimed to be the result of human activity, and that these bone beds did not show any intensive processing of meat carcasses as did Late Prehistoric ones. Todd (1987) also concluded that the Paleoindian goal had not been storage and extensive food processing, as was the case for Late Prehistoric and Historic Plains bison hunters; rather, their goal had been food procurement and processing of meat for relatively short periods of time.

Bamforth 1988

Bamforth (1988), in his review of ecology and human organization on the Great Plains, examined the apparent contrast between environmental change and cultural continuity in the Paleoindian period, and argued that changes should have occurred in organization. He essentially focused on grassland and ungulate ecology, and Paleoindian environments and adaptations.

Bamforth (1988) viewed Paleoindian lifeways as characterized by a reliance on larger game, with some smaller animals and plants being exploited. Faunal data suggested that communal hunting had been practised from fall through spring; however, the products of Paleoindian kills seemed to be used less completely. Moreover, the lack of repeated short-term reuse of specific kill sites suggested to Bamforth (1988) high mobility for Paleoindians, and raw materials also indicated that Paleoindians had access to lithic resources over large areas. He argued for low population densities on the Plains during Paleoindian times. This low population, coupled with high mobility, resulted in the exploitation of large territories. Bamforth (1988:161) suggested that high mobility had been related to resource structure and acquisition, and to the need for maintaining social contacts with widely separated social groups.

At end of the Pleistocene, according to Bamforth (1988), ungulates, moving in regular patterns, were abundant and dispersed across the landscape. Bamforth (1988:164-165) argued that Clovis populations then had also been dispersed, small in size, and without extensive formal mechanisms of social control. With the climatic changes at the Pleistocene-Holocene boundary, however, forage production declined and became more seasonal, and faunal diversity decreased. In addition, fewer animal species were concentrated in larger herds, and thus were increasingly more patchily distributed, more mobile, and less predictable. Thus, Bamforth (1988) proposed that there should have been a

constant increase in human aggregation size from Clovis through late Paleoindian times in response to this increasingly patchy unpredictable distribution of animals. Social complexity would have increased from Clovis (11,500-11,000 years B.P.) to Folsom (11,000-10,000 years B.P.) times, and this increase would have resulted in larger sites with denser and more diverse artifact assemblages for Folsom times (Bamforth 1988:164-166). Bamforth (1988:182) argued that available archaeological data were consistent with this model, although not a rigorous test of it. Data, with regard to site types and distributions, from 83 Paleoindian sites showed that multiple activity sites were absent during Clovis times (which is consistent with a higher degree of population dispersion predicted for Clovis) and more frequent during Folsom times; this pattern indicated an increase in the degree of social aggregation at the end of the Pleistocene.

Frison 1988

In an examination of post-Clovis Paleoindian subsistence and settlement on the Northwestern Plains and adjacent mountain regions, Frison (1988) discussed in detail the Goshen Paleoindian cultural complex, which had been first recognized at the Hell Gap site in the early 1960s and, more recently, identified at the Mill Iron site in Montana. Its relationship to Clovis and Folsom was unclear, but in view of the technology of projectile point manufacture, Frison (1988) suggested that Goshen could have been an immediate precursor of Folsom, although many Goshen stone tools were reminiscent of Clovis. He also proposed the development of a dichotomy in subsistence strategies between the foothills/mountains and the plains regions by 10,000 years B.P. as a result of the ecological changes at the end of the Pleistocene. These two strategies, he argued, had been mutually exclusive, with small mammals and plant procurement and the use of caves and rock shelters practised by foothill/mountain Paleoindians, and a bison hunting economy practised on the plains. This dichotomy and separation between the two ecologically-imposed subsistence strategies began to disappear near the end of Cody complex times, around 8,000 years ago, with increasing aridity and the loss of sufficient numbers of bison to sustain communal procurement practices (Frison 1988:101).

Frison (1988:92) viewed Folsom groups as being sophisticated hunting groups who had relied mainly on bison, with lesser emphasis on pronghorn. He also argued that the Paleoindian period should be regarded as more than a sequence of cultural groups in North America identifiable by projectile point types (Frison 1988:103). Moreover, Paleoindians were not members of a continent-wide cultural group. Instead, there were different groups in different ecological areas; therefore, Southern Plains groups would have been different from Northern Plains Paleoindian groups (Frison 1988:103). Frison (1988:103) also suggested that, for Paleoindians, the alternation from true hunting to hunting and gathering had required more fluid social organization than is usually seen among true hunting societies; therefore, he considered it possible that some Paleoindian groups had been organized socially along lines similar to those

documented for certain African Bushmen societies, who were able to shift from one economic strategy to another in response to short-term subsistence base changes.

Hofman and Ingbar
1988

Hofman and Ingbar (1988) provided a model of Folsom subsistence and mobility for the Northwestern Plains. They argued that evidence from Folsom sites suggested a subsistence with a strong emphasis on bison, often only minimally butchered (Hofman and Ingbar 1988:343). They further argued that the interpretation of high mobility with economic security gained by closely monitoring bison movements was supported by less than maximum intensity utilization of bison, and the repeated evidence for limited campsite or occupation activity adjacent to kills (Hofman and Ingbar 1988:343). Hofman and Ingbar (1988) suggested that this pattern of high mobility would have resulted in the need for a highly portable, versatile, and closely curated technological system, and the occurrence of many short-term camps associated with overlooks and hunting stands. They maintained that the Folsom data indicated exploitation of all the major high quality lithic sources in the western Plains region; this observation suggested that Folsom groups had a detailed familiarity with the terrain, and could not be considered "uninformed newcomers" (Hofman and Ingbar 1988: 345).

Kelly and Todd
1988

Kelly and Todd (1988) discussed in detail early Paleoindian (12,000-10,000 years B.P.) hunting and mobility patterns in North America. They viewed Paleoindian lifeways as characterized by a dependence on hunting, with high residential, logistical, and range mobility because of post-Pleistocene environmental changes and low initial population of the continent. In addition, Kelly and Todd (1988) argued that North American Paleoindian subsistence technology had included the use of high quality lithic raw materials, a reliance on bifacial technology, limited use of cave and rock shelters, and a low level of processing food products for storage. To explain these similarities in Paleoindian fluted point assemblages across North America, Kelly and Todd (1988) argued that Paleoindians had entered an unpopulated continent. The best lifeway suited to the utilization of an unknown territory would have been reliance on faunal rather than plant resources. They also maintained that Paleoindians had shifted their territories frequently as faunal compositions and distributions had changed; this shifting resulted in high residential and logistical mobility.

Kelly and Todd (1988) listed four major implications of this model of faunal dependency and high mobility. First, Paleoindian behaviour should have been relatively consistent across the continent regardless of the environment. This consistency, they argued, was seen in the similar artifact types in Paleoindian assemblages. Second, Paleoindians should have made use of the landscape in a short-term and redundant fashion because they did not know the region; this pattern prevented the

substantial accumulation of archaeological debris, and accounted for the many surface finds of fluted points and lack of Paleoindian sites in North America. Third, Paleoindians would have required a technology that was highly portable and oriented towards hunting. This premise was supported by the high number of bifaces, the use of high quality exotic raw materials, the presence of tools with long, variable use-lives (resharpening and recycling), and the presence of gravers, scrapers, and burins suggesting manufacture of bone, wood, and antler tools. Fourth, because resources were not concentrated and reliable, a long-term, repeated storage strategy would not be expected in Paleoindian strategies. This interpretation, they argued, was supported by evidence from archaeological sites (primarily western Plains sites) that indicated animals were not butchered and processed extensively.

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| Kornfeld 1988 | Kornfeld (1988) discussed the Rocky Foolsms site located in northeastern Wyoming, its small Folsom assemblage, and the implications for Folsom cultural dynamics. He noted that ethnographic evidence indicated that, at a latitude equivalent to the Northwestern Plains, modern hunter-gatherers were highly dependent on floral resources; however, Plains hunter-gatherers had been almost universally depicted as big game hunters, partly because of the extensive Plains bison hunting folklore. Kornfeld (1988) argued that a different picture of Folsom lifeways from the bison-dependent subsistence view would emerge with documentation and analysis of other such small sites, and consideration of the non-hunting implications of the data. He demonstrated that tools typically associated solely with the realm of hunting, such as projectile points and scrapers, were, in fact, more realistically seen as also being connected to the realms of plant gathering, manufacturing of other tools, skin processing technology, and the making of clothing and carrying equipment. |
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| Goodyear 1989 | Goodyear (1989) provided a detailed examination of Paleoindian stone technologies and their use of raw material. Basing his argument on ethnographic data, he suggested that Paleoindians had directly acquired lithics; therefore, the presence of exotics in Paleoindian assemblages from across North America suggested that highly mobile strategies had been practised by Paleoindians. In addition, he argued that the Paleoindian use of cryptocrystallines allowed great precision and reliability in flaking. Goodyear (1989) thus proposed that, among mobile Paleoindians, problems of mobility had been solved by adopting the use of cryptocrystalline raw materials for creating portable and flexible technologies with long life spans to offset geographic incongruences between resources and consumers. Furthermore, according to Goodyear (1989), evidence of abundant resharpening and recycling in Paleoindian assemblages supported this hypothesis. |
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| Frison 1990a | Frison (1990a:101) argued that the Clovis assemblage had been well designed for big game hunting. He also argued against the idea that Clovis hunters had driven mammoths into bogs, because |
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it would have been impossible to butcher them. Moreover, he believed that Clovis hunters had been skilled enough that they could drive mammoths away from bogs and kill them on flat dry land where butchering was much easier (Frison 1990a:102).

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- Frison 1990b Basing his argument on the Simon and Anzick assemblages, which possibly had been burial offerings, Frison (1990b:16) suggested that Clovis caches had been an integral part of the Clovis complex. He also believed that Paleoindians had been successful in hunting mammoth, and, having adequate weapons, they would spear strays and follow them until they were dead rather than butchering them in bogs (Frison 1990b:17-18). Frison (1990b) also supported the use of the African elephant as a model for Paleoindian-mammoth interactions. His work revealed a preoccupation with dating cultures and chronologies, especially with reference to the relationships between Clovis, Goshen, and Folsom. Frison (1990b:29) viewed Paleoindian populations as locally-oriented, isolated, and territorial groups.
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- Jones 1990 Bruce Jones (1990) used optimal foraging and prey selectivity models to examine the interaction between Paleoindians and mammoths, and the ecological determinants of selectivity in the American Southwest. He concluded that prestige had been a primary concern in hunting mammoth. According to Jones (1990), procurement of mammoths was selective and favoured the taking of solitary males and older animals of both sex. Moreover, Jones (1990) argued that there had been no seasonal mammoth migrations; thus, there had been high density localized herds that were highly conducive to use by humans.
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- Saunders 1990 Saunders (1990) discussed the use of uniformitarian and analogical theory and procedure in historical reconstruction of the late Pleistocene time period of 12,000-10,000 years B.P.; he argued that it corroborated the suggestion that Clovis hunters, operating communally and equipped with lethal thrusting weaponry, would have been formidable mammoth predators who achieved successes that have been recorded in the archaeological record as mass kills. Furthermore, he argued that bison hunting by late prehistoric and historic Plains Indians, and non-native hunting of elephant families, provided superior uniformitarian models for mammoth procurement in North America (Saunders 1990:139).
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- Todd, Hofman, and
Schultz 1990 Todd et al. (1990) reported the results of an examination of tooth eruption and wear of bison mandibles recovered from the bone beds of two Paleoindian bison kill sites, Scottsbluff and Lipscomb. Their studies indicated that the Scottsbluff bison had died in late spring/summer. At Lipscomb, the bison had died in late summer to early fall. These patterns of seasonal mortality were very different from those generally reported and assumed for Paleoindian kills, that is, late fall or winter (e.g., Frison 1982a). Todd et al. (1990) concluded that the fact that some sites did not fit the presumed winter kill pattern did not warrant an

interpretation that these differences reflected seasonal differences, as the late Pleistocene was characterized by less extreme seasonality. Instead, they suggested that seasonal variation in Paleoindian activity may have not been as strongly patterned as it was for later hunter-gatherers on the Plains (Todd et al. 1990:824). Paleoindian strategies may have been distinctively different from the familiar ethnographic "seasonal round" that formed the basis of many Paleoindian subsistence models (Todd et al. 1990:824).

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- Andrefsky 1991 Andrefsky (1991) analyzed lithic production technology in order to examine changing trends in settlement behaviour from Paleoindian to Late Prehistoric times on the Southern Plains. His examination of tool types as well as the expedient or formalized nature of tools indicated to him that prehistoric populations had been relatively mobile during the Paleoindian stage; also evident was a trend towards increasing sedentism. Andrefsky (1991) argued for a general increase in expedient cores and tools over time.
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- Bamforth 1991 In a discussion of problems with Paleoindian point typology, Bamforth (1991) argued that, traditionally, archaeologists had reconstructed Paleoindian culture historical patterns by examining projectile points from communal kills; however, he suggested that the focus on Paleoindian projectile points from communal kills may be obscuring the full range of projectile point variation in form and technology, because only the best knappers supposedly had made points for communal kills. He also pointed out that there was a problem with projectile point typologies because of the tendency for splitters to assume that all variation could be organized into types; this assumption resulted in the creation of numerous types.
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- Boldurian 1991 Boldurian (1991) discussed the role of bifaces as cores in the organization of Folsom lithic technology for groups on the interior Southern Plains. He concluded that Folsom groups on the Southern Plains had been highly mobile, and that the manufacture of large biface cores had been an adaptive response to solve problems of stone scarcity and high group mobility and implement needs.
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- G. Haynes 1991 Gary Haynes (1991) examined similarities between past and present proboscideans in an attempt to strengthen the case for using actualistic studies of modern elephants to study fossil mammoth and mastodont assemblages. After a detailed examination of actualistic studies of mass deaths and mass kills, he examined the fossil record to discover patterns in elephant assemblages. He argued that "stories," based only on selective samples and unproven assumptions that had been transformed into truths, had been created about mammoth hunting specialists world-wide. According to Haynes (1991), archaeologists had never considered the possibility of mammoth sites being smeared, time-averaged palimpsests. Instead, they viewed them as single events that were the result of human involvement. He

argued that archaeologists needed to reexamine these assemblages critically. Focusing on North American mammoth sites, Haynes (1991) argued that there was no unequivocal proof that humans had slain proboscideans before processing the carcasses. He concluded that most mammoth assemblages resembled non-cultural mammoth die-off assemblages that were most likely caused by environmental stress at the end of the Pleistocene. Thus, Haynes (1991) suggested that Clovis peoples had been merely spectators who had exploited these mammoth die-offs. The mammoth's appeal as prey increased, and allowed Clovis peoples to expand rapidly and exploit these die-offs. Haynes (1991) concluded that this scavenging explained why carcasses had been little used, not broken for marrow, and located in waterholes: because the mammoths had starved to death.

Johnson 1991

Eileen Johnson (1991) proposed an environmental-cultural construct for the Southern Plains during the late Pleistocene based on ethnographic hunter-gatherer theory and data, and paleoclimatic and ecosystemic data. She argued that Clovis peoples had been organized as foragers; that is, they were generalists in their approach to subsistence. They had a broad-spectrum, meat-related subsistence base organized around a foraging structure based on opportunistic behaviour patterns that allowed for both hunting and scavenging of animals, and the exploitation of bone resources, with the use of a minimal lithic tool kit, and general conservancy of lithic materials. In view of the analyses of scars, reworking, damage/use, and point morphology, Johnson (1991:227) considered the Clovis point as a multipurpose tool that had been used as a weapon, and used in butchering and plant gathering. A mixed age-sex pattern for Clovis site faunal assemblages on the Southern Plains suggested to Johnson (1991:228) a scavenging mode of procuring individual mammoths as opposed to an active hunting mode. She concluded that the evaluation of the fit of the construct she had developed with the actual data was hampered by disparate field methodologies and research approaches that had led to variable quality and a biased nature of the data, that is, a lack of residential sites, and a lack of data on plant gathering activities and on the role of plants in the subsistence base. Johnson (1991) concluded that there was strong support for a foraging organization structure for Clovis populations, especially with evidence indicating an equitable climate, data demonstrating the availability of a variety of potential game animal resources, and the early Paleoindian archaeological record reflecting broad-based animal resource utilization.

Davis and Greiser
1992

In an examination of the early Paleoindian occupations at the deeply-stratified Indian Creek site in the northern Montana Rockies, Davis and Greiser (1992:266) supported the idea that the artifact assemblage appeared to represent primarily female domestic activities that succeeded such male-dominated off-site activities as lithic and game procurement. They further noted

that "big-game-reliant hunter-gatherers also collected and utilized diverse lesser species" (Davis and Greiser 1992:276). The evidence for a broad-spectrum use of fauna in the Paleoindian occupations at Indian Creek indicated to Davis and Greiser (1992:280) the possibility of food resource marginality.

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- J. Fisher 1992 John Fisher (1992) examined the bone assemblage recovered from the Lamb Spring site in Colorado to determine if human involvement had played a role in the formation of the assemblage. He used, as a basis, experimental and actualistic research on elephant butchering and processing in the Ituri forest of Zaire. Fisher (1992) argued that Ituri elephant butchering could be used as an analogy for prehistoric mammoth butchering/processing to some degree. He concluded that there was inconclusive evidence to support human involvement at the Lamb Spring site, but stressed the importance of experimental and actualistic studies.
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- Frison 1992 Frison (1992) provided a detailed review and discussion of the dichotomy in Paleoindian subsistence strategies between the foothills/mountain region and the open plains region, that is, the emphasis on sophisticated communal bison hunting methods on the plains, and the focus on the procurement of mountain sheep, mule deer, and plant resources in the foothills/mountain regions. He argued that by 10,000 years ago, an ecological boundary between the foothills/mountain region and the plains had developed; this boundary, consequently, separated the cultural groups. Furthermore, Frison (1992:337-338) suggested that the different projectile points between the two regions seemed to indicate that the foothill/mountain groups had been relatively isolated. Moreover, the use of local lithics by these groups suggested that the foothill/mountain groups had been more locally-oriented (Frison 1992:338). Only by approximately 8,000 years ago did this dichotomy break down.
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- Hofman 1992 In a study of Folsom technological variation on the Southern Plains, Hofman (1992) examined the lithic assemblages from three Folsom sites, with a focus on aspects of recycling, reuse, and retooling events in relation to mobility and location of lithic sources. Hofman (1992:197-198) viewed Folsom groups as highly mobile, as suggested by the presence of artifacts made from nonlocal lithic material, the use of composite tools with multiple functional edges, the high proportion of artifacts as compared to debitage at most non-workshop sites, and the lack of middens and the presence of small components. Folsom hunters would therefore have been forced to retool following kills at some distance from good lithic sources, and would have needed to curate and maintain their tools and lithic materials (Hofman 1992:198). The use of large bifacial cores by Folsom groups would have provided an expedient and versatile way to transport good lithic material over substantial distances (Hofman 1992:201). Basing his interpretation on assumptions made about retooling events and cycles, Hofman (1992:208) suggested that the assemblage of a kill that had occurred immediately after the

group had visited a quarry would have been dominated by classic bifacially fluted Folsom points, whereas an assemblage used by a group after numerous kill and processing events had occurred without a quarry visit, would have contained primarily unfluted and heavily reworked points.

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- Ingbar 1992 Ingbar (1992) presented an examination of the use of raw materials in terms of hunter-gatherer mobility as suggested by the archaeological assemblage recovered from the Hanson site, a Folsom workshop-quarry location on the Northwestern Plains. He discovered that local lithic materials in the Hanson assemblage were predominantly in earlier reduction stages, whereas the nonlocal material was mostly in later stages of reduction (Ingbar 1992:183). Ingbar (1992:187) concluded that the staging of lithic reduction seemed to have been a part of a planned reduction strategy in which reduction had been staged between different raw material sources, so that raw materials for tools had a relatively controlled and anticipated life cycle within the mobility and activity strategy.
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- Saunders 1992 Saunders (1992) discussed the issue of mammoth exploitation in the late Pleistocene, restated his herd confrontation model (i.e., the procurement of complete family units), and argued that although the data did not prove or disprove it, the model provided a realistic, likely, and, moreover, best explanation for Clovis and mammoth assemblages. He also repeated his claim that modern culling of elephants by European Africans provided a much superior model for inferring Pleistocene methods of mammoth procurement in North American as opposed to modern native practices of elephant procurement (Saunders 1992:129-131).
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- Todd, Hofman, and
Schultz 1992 Todd et al. (1992) provided the results of a recent reexamination of the bison bone bed associated with the Lipscomb Folsom site in Texas, which had been originally interpreted as a small Folsom kill. In view of their detailed analysis of the faunal remains, they concluded that the assemblage represented a later summer mortality, most likely a single event or several events closely spaced (Todd et al. 1992:142). Moreover, the limited processing and utilization of the carcasses recovered from the bone bed (as evidenced at numerous other Paleoindian sites as well) was a possible indicator that long-term food storage had not been a significant component of Paleoindian subsistence strategies (Todd et al. 1992:142). They concluded that the Lipscomb site provided another case demonstrating that Paleoindian hunting and subsistence patterns did not necessarily correspond with models derived entirely from later Plains bison hunting groups (Todd et al. 1992:162).
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- Bradley 1993 Bradley (1993:255-256) proposed that the complex fluting process may have originated as an expedient way to thin the base of projectile points, but that it eventually took on less utilitarian meaning, and developed into an integral part of a pre-hunt predictive ritual. He argued that this interpretation explained the

discarded and intentionally broken fluted preforms recovered from numerous Folsom sites. Bradley (1993:256) considered the extreme artistry and care expressed in many Paleoindian points to be symbolic of the power believed to be invested in them.

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| Frison 1993 | Frison (1993) argued that both Clovis and Folsom points and thus Clovis and Folsom cultural groups had been present at higher altitudes in the foothills and mountains west of the Northern Plains. But after Folsom, for at least 1,000 years, there were different cultural groups in the foothills-mountains from those on the open plains, each practising different subsistence strategies: true hunter-gatherers in the foothill-mountain areas focusing on small animal and plant resources, and large mammal hunters on the open plains (Frison 1993:240). Frison (1993:240) noted that this conclusion had been based on typologically different sequences of projectile point and tool assemblages recovered from sites in each area. |
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| C. V. Haynes 1993 | Basing his interpretations on geologic evidence, Haynes (1993) postulated that around 11,000 years B.P., during the Clovis occupation, many parts of North America had been subjected to drought conditions and extinctions of megafauna. Thus Clovis artifacts were commonly associated with the last remnants of Pleistocene megafauna under drought conditions, while the following Folsom-Midland occupations were associated with improved hydrological conditions at many sites. |
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| Meltzer 1993a | Meltzer (1993a), in a critical examination of the "Clovis Adaptation," concluded that Clovis had not been a continent-wide adaptation as had been traditionally assumed, but rather likely had consisted of distinctive and multiple occupations and adaptations. Moreover, he outlined the increasing data that indicated that not all Clovis populations had been specialized big game hunters. Instead, many of these early Paleoindian groups had practised generalized subsistence strategies, and had exploited a wide variety of plant and animal resources. |
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| Todd, Rapson, and Redmond 1993 | Basing their interpretations on continued investigations of the bison bone bed at the Hudson-Meng Paleoindian site, Todd et al. (1993) concluded that original interpretations of the site as representing a secondary processing area characterized by heavy butchering and extensive utilization were questionable. Instead, they discovered that many of the distributions and patterns had not necessarily been the result of human activity. These patterns, they argued, more likely had been due to differential preservation, natural distribution, and scattering. |
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